Volume 89 Number 7

STEEL

For forty-eight years—IRON TRADE REVIEW

PRODUCTION ◆ PROCESSING ◆ DISTRIBUTION ◆ USE

This Week in Steel

FIRST in war, first in peace, first in the headlines in time of depression is Washington, the capitol. Consider for this week only that Washington news which is pertinent to steel. In his air-conditioned offices the President is formulating unemployment relief for next winter. Up Pennsylvania avenue a sweltering interstate commerce commission hears opposition to an increase in freight rates. Across McPherson Square an avid department of justice is scanning the books of rail manufacturers. Down in the Potomac bottoms the federal trade commission notes that the scrap industry is not satisfied with its trade practice code. And from Capitol Hill come rumblings that the issue before congress next session will not be tariff, but bread.

Practice Bests Theory in Wage Problem

It may be a significant sequel that the President once more plunges into the matter of unemployment after his advisors carefully contact industry, including steel. Less will be said at Washington concerning maintenance of wages, it is understood (Page 17), the administration recognizing it as impolitic to stress wage rates in the face of widespread salary reductions. But the President is reported no less adamant that nothing approaching a dole shall be dispensed by the government, that the burden of relief be shouldered by local and state organizations coordinated by Washington. There is some speculation whether the President will forestall radical legislation by proposing his own brand of unemployment insurance.

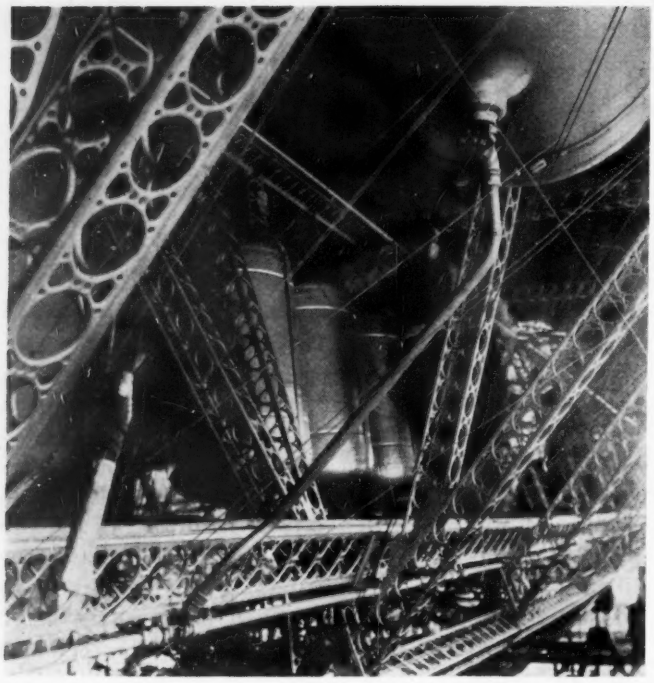
More Conquerors, but No More Worlds

From the unsettled state of labor arise many unusual developments. . . . Because enrollment at engineering schools has increased 40 per cent in 5 years there is a noteworthy surplus (Page 18) of engineering graduates. . . . To lessen competition for jobs, the department of labor is urging (Page 23) that all children under 16 years of age be kept in school. . . . Possibly because they are far removed from congested labor markets, certain groups of employes on the Hoover dam project (Page 17) have struck for higher wages. . . . Organized labor might have to scale down its membership drastically were every delinquent union man (Page 17) stricken off the rolls.

Pygmies, Not Giants, Will Lift Business

Little business, not big business, will free the United States from the slough of depression, declares the National Industrial Conference board (Page 19). Only 1½ per cent of all industrial

Material progress patterned over a spiritual background is depicted in construction work on a bridge leading to the Canadian National Railway's new terminal at Montreal, Que.



Wide World Photo

Maximum strength with minimum weight obviously was the goal in the navy dirigible christened Aug. 8 at Akron. Photo shows the connection between a 365-gallon tank and the fuel line

establishments in the country boast more than 500 employes each; 87 per cent of all establishments employ 100 persons or less; and a moderate expansion of the raw material requirements of this 87 per cent would set the industrial ball rolling, the board points out.

Scientific Progress Open to All

And little business as well as big business can profit from technical advances. . . . Bright annealing is a subject engaging attention in many heat-treating departments. Experiments with the various furnace atmospheres and their effects on metals indicate the commercial practicability (Page 34) of bright annealing. In an atmosphere of flue gas, with the moisture removed and vapors of methanol or methyl alcohol added, bright annealing of brass is accomplished. . . . At the forthcoming National Metal congress of the American Society for Steel Treating at Boston, Sept. 21-25, 54 papers (Page 42) have been scheduled.

Where Conservation Is No Blessing

How to broaden their markets is a problem the coal and oil industries are studying assiduously, and along comes the steel industry to reduce its requirements. . . . A decade ago it took 700 to 750 pounds of coal, or its equivalent, to produce one ton of steel in the ingot, whereas today (Page 40) only 375 pounds are consumed and further economies in open-hearth construction and operation are being perfected. . . . A bearing liner offered on the market by one manufacturer (Page 38) for use in rod, bar and wire mills requires only water, no oil. . . . Soft coal producers, troubled by overproduction and labor, welcome government control, they say (Page 18) in hints to Washington.

July Poor, but Double the 1921 Low

Search for a comparison with the July rate of steel production (Page 21) mows down all monthly statistics back to 1921. July's daily rate of 72,160 gross tons was the lowest since December, 1921; it indicated an average operation of 34 per cent in July and 45 per cent for the first seven months of 1931. . . . Yet, poor as July was, it almost doubled the showing of July, 1921, which proved the bottom of the postwar depression. Taking into consideration capacities, the pig iron industry in July was engaged (Page 27) at 32 per cent, against only 20 per cent in July, 1921. Similarly, the comparison in steel ingots for the two Julys is 34 per cent this year and 19 per cent a decade ago.

Steel Rate Up; Is It Turning?

Hopes that August will be pivotal as it was a decade ago are buoyed mildly this week. Steelmaking operations are up 2 points this week (Page 57) to 32 per cent. . . . Building continues to provide substantial demand, comparatively speaking, with this week's structural awards (Page 62) topping 25,000 tons and more than 165,000 tons active, including large projects previously cited but now nearing the placement stage. . . . In pipe, (Page 67) too, buyers appear slightly more interested, and more inquiry and a few awards are also enlivening the railroad market mildly (Page 61). . . . European markets continue dull (Page 84) and there is more discussion of cartels, syndicates and other co-operatives for which the Continental producer has a flair.

Heat Treat Cast Crankshafts

Steel foundries, meeting a favorable audience with their cast steel crankshafts, are pushing their advantage. The requisite high strength and toughness are obtained (Page 31) by special heat treatment. . . . A successful method for testing the reliability and soundness of butt welds is claimed. The welded seam is bridged by a large horseshoe electromagnet (Page 33) and the magnetic field set up in the vicinity of the weld is explored with a testmeter. . . . Sweden calls for comparisons with a cold-rolled hardened steel band (Page 42) 360 feet long, 32 inches wide, 0.0472-inch thick.

Think Hoover May Forestall Radicals on Job Relief

WASHINGTON — President Hoover apparently recognizes that whatever relief develops in the economic situation between now and next winter will be insufficient entirely to relieve the distress of unemployment to an appreciable extent, and hence has set himself to the task of organizing relief.

The President continues convinced that a federal dole would be unwise, and has not changed his position that unemployment constitutes no emergency or disaster with which the Red Cross should cope. He still believes that local and state organizations, co-ordinated by the federal government, are the way out.

"During the past three weeks," the President states, "I have been engaged, with members of the administration, in a study of the problems of unemployment and relief likely to confront us over the coming winter and the organization necessary to meet the situation. While improvement in the situation in many directions seems promising, the problem, whatever it may be, will be met.

Stresses Organization

"With the organized co-operation of local, federal and state authorities, and the large number of relief and charitable organizations, the problem was successfully handled last winter. We shall adapt organization methods in such manner as may be necessary for the coming winter."

Unemployment insurance again is rearing its head, and may be a live issue in the forthcoming congress convening in December. In fact, indications point to unemployment and its relief being the major topic of discussion at this session.

All of the house of representatives and one-third of the senate will be up for re-election in November, 1932. So, in effect, will be the entire national administration. The campaign of 1932 will be based in large measure upon the record written in congress, and the next session is the last opportunity before the 1932 elections.

Hence innumerable relief and unemployment insurance proposals are certain to be introduced. At his summer camp last week-end the President is said to have discussed the matter with his advisors. It is being asked whether the President, recognizing the practical politics of the situation, may prefer to suggest a compromise measure of his own to running the chances of radical legislation being forced upon him.

Public work calling for expenditures amounting to $300,000,000 will be under full swing by fall.

Another fact of the many-sided economic problem pressing in on the administration for attention is the proposal made by some of the bituminous coal producers in the Pittsburgh and West Virginia districts for federal control of mines.

The government would be asked to buy some mines and close them, while others would be placed on a utility status similar to the railroads. While nothing has been submitted officially, it is said the administration has been "sounded" on the question, and the next step is awaited in the form of some intimation from the administration as to its attitude.

Railroad brotherhoods have been seeking a joint conference with railroad executives with the avowed aim of obtaining guarantees of some form of relief for 350,000 idle members. So far the executives have indicated an unwillingness to consider the problem in its entirety, as a group, with a committee representing the brotherhoods, and the latter are reiterating their pronouncements in favor of rate increases, and in opposition to wage reductions, which might follow if rates are not advanced.

Union Wages Easing; Membership Uncertain

UNION wage scales in the building trades have not been reduced—officially—but reports indicate that there never was a time in the past ten years when there was so much compromising as at present. Building material prices are 20 per cent less than they were five years ago, but published wage scales are 8 per cent higher. Contractors having public work are required in many cities to pay official wage scales, while those on private work say they do not have a sufficient number of jobs to hire all the union carpenters, bricklayers and other skilled workmen offering to work at less.

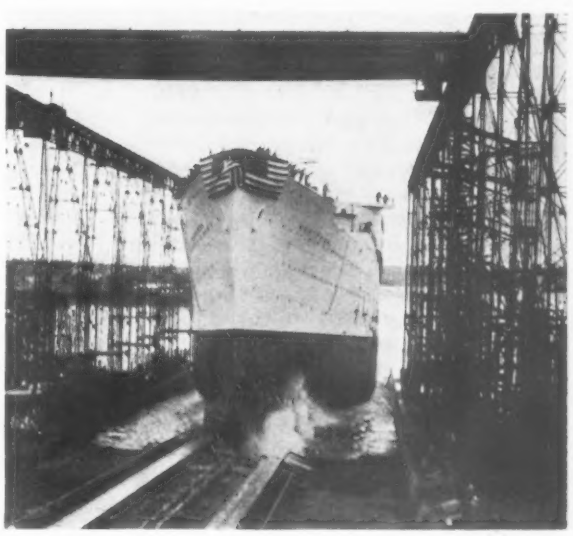
Trade union rules are being waived, or not enforced, by local organizations. Many workers are unable to pay dues. Under strict interpretation of rules they soon would be dropped from membership. But they are being "carried" on the rolls; otherwise, the membership would show an alarming decrease.

Strike at Hoover Dam

Las Vegas, Nev.—Six months ahead of its work on the Hoover dam, largest project of its kind ever undertaken by the government, Six Companies Inc. has refused demands for a minimum $5 a day for 1700 striking workmen. Tunnel workers asked for $5 50 and miners and carpenters, $6. The scale has been $4 for laborers, $5 for tunnel employes and $5.60 for miners and carpenters. Six Companies' superintendent said the demands would add $3,000,000 to the labor cost.

Steelworkers Stay Put

Washington—During June five iron and steel workers entered this country



It would be "good business" for the government to authorize construction of 100 *modern cargo ships at a cost of* $125,000,000, *according to Capt. C. A. McAllister, president, American Bureau of Shipping, New York. Unemployment would be relieved, and necessary cargo ships obtained at minimum cost. Private companies are doing their share. Photo shows the recent launching of the passenger liner* MARIPOSA, *first of three vessels in the Matson Line's* $25,000,000 *building program*

while 19 left, according to the bureau of immigration, department of labor.

During the fiscal year ended June 30, 216 steelworkers entered the country compared with 1380 the previous fiscal year, while 196 left, compared with 188 the previous year.

Engineering Graduates Find Jobs Are Scarce

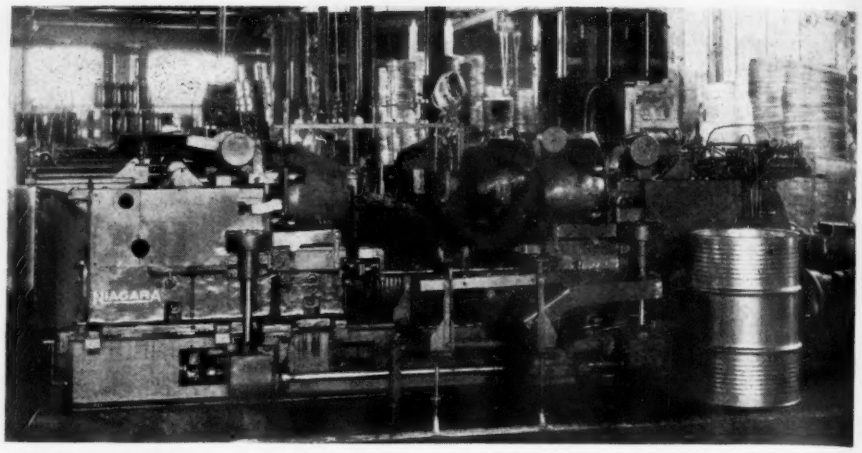
A 40 per cent increase in enrollment in engineering schools of the country during the past five years narrows professional possibilities in some fields as the saturation point nears, according to a recent address made by W. C. John, specialist in professional education at the Federal Office of Education.

Total enrollment for 1930-1931 in 145 leading engineering schools reached 78,685. Reports from 5866 of this year's graduates from 88 institutions revealed that only 2240 or 38.2 per cent have been placed. General business conditions, of course, account partly for this low figure.

The four leading branches of engineering pursued by professional students are electrical, mechanical, civil and chemical, with mining and metallurgy ranking fifth. These and other statistics on engineering education are in process of compilation by the Federal Office of Education.

Reduces Coal Miners' Pay

Colorado Fuel & Iron Co., Denver and Pueblo, Colo., has informed the Colorado industrial commission that it is reducing wages of its coal miners from $6.52 to $5.25 per day. The company, which reduced salaries of its executive officers two months ago, states: "This action was taken with great reluctance. Our company was one of the last to make a reduction and only did so because it was forced to such action by competitive conditions and by the general situation in the coal industry."



Steel drum bodies are automatically flanged, beaded and corrugated on the above four units installed by the Niagara Machine & Tool Works, Buffalo, in the plant of the Atlas Steel Barrel Corp., Bayonne, N. J. The above photo was taken from the finishing end. Five bodies a minute can be completed

Equipment Men To Meet

Members of the manufacturers section of the American Gas association will assemble for their annual meeting Sept. 17-18, at the Book-Cadillac hotel, Detroit. Prominent representatives of the gas industry will appear on the program, according to announcement.

Scans Rail Mill Books, but End of Probe Is Distant

Washington—Books of some of the steel rail manufacturers have been gone into by operatives of the department of justice, it is understood here, in connection with the department's investigation into the price of steel rails being made at the request of the interstate commerce commission, which in turn was asked about the situation by Senator Couzens, of Michigan.

Officials of the department refuse to discuss the situation at any length or to state when the investigation will be completed. It is known, however, that some field work has been done. It is not likely that any report will be forthcoming for some time.

Pittsburgh Favorable to Federal Control of Coal

Operators and miners in the soft coal industry in the Pittsburgh district generally look with favor upon a proposal that the government regulate operations of the industry similar to the plan followed in the public utility field. This proposal was made several weeks ago by J. D. A. Morrow, president, Pittsburgh Coal Co., at a preliminary conference of operators at Washington.

Some such plan, it is believed, could overcome the overproduction current in the industry which has resulted in the unfavorable conditions prevailing for the past several years. It is pointed out that such a proposal would be an effective substitute for the merger plan which at present is prohibited by antitrust laws.

The United Mine Workers union

Scrap Institute Seeks Adoption of Rule Against Misleading Price Lists

BELIEVING rejection of two proposed rules of business practice by the federal trade commission is founded on misapprehension of the situation, the Institute of Scrap Iron and Steel Inc., New York, has asked a hearing to present these rules anew. One rule condemns circularizing the industry with misleading price lists and the other condemns failure of brokers to give credit for overweights.

"If it is the policy of the commission," says Benjamin Schwartz, director general, "to disapprove any rules that may tend to affect the price of any commodity and thus avoid the opportunity or temptation to use any such rule for illegal purposes it is respectfully stated that Rule 6 (circularization of misleading price lists) does not fall within this category.

"The scrap market is one of the most sensitive commodity markets in the country, and the price of scrap is determined by the law of supply and demand alone. It is not uniform in all districts and may change, as it frequently does, overnight.

"It must be emphasized that there is no occasion in the scrap iron industry for the publication of any price lists, because of the sensitive fluctuations in the markets.

"The rule condemns a practice which has for its purpose only the demoralization of markets, to the embarrassment of competitors, and to mislead and disorganize shippers of scrap. If circularization of price lists has any effect on the price of scrap iron, it would have the effect of artificially raising the price of scrap, and thus interfering with the normal functioning of a market governed by the law of supply and demand."

has expressed itself in favor of governmental intervention. The union has announced that about 8600 miners are back at work under union contracts in the Pittsburgh district and northern West Virginia.

Army and Navy Pay More But Are Buying at Home

Washington—The army and navy have just adopted a practically airtight ban on the purchase of foreign products, due to a liberal interpretation of the law. In view of this it has just become known that these two branches of the government have recently purchased commodities for their use which have been as much as 35 per cent above the cost of similar articles made abroad.

There have been a number of instances, it is understood, where the war department has asked for bids on wire rope. This is used by the army engineers in harbor work. In each instance, dealers handling wire rope made in Belgium submitted the lowest bids. The dealers of wire rope made in the United States, however, were awarded the contracts. The price of the domestic article, it is stated, was from 10 to 20 per cent higher than the Belgian article.

Republic Salaries Cut

Officials and department heads of Republic Steel Corp., Youngstown, O., were reduced in salary 16 2/3 per cent as of Aug. 1. This is extension of the plan already in effect for lower salaried employes. All salaried workers now are at work 5 days a week with 5 days' pay.

Structural Shop Reopens

Wheeling Structural Steel Co., Wheeling, W. Va., has reopened following a shutdown of 6 months.

Finds Small Plants Have Greatest Economic Power

DISADVANTAGES of small manufacturing plants in times of economic stress have been pointed out frequently. Many of them do not have the capital, surplus and other means necessary to withstand business shocks; they are buffeted by circumstances over which they have little control.

Now comes the National Industrial Conference board, New York, and indicates how these plants "have it in their power to assure the success of any general policy for the improvement of industrial conditions." Individually the small plants are unimportant, but collectively they could exert a tremendous force.

1000-Man Plants Few

This power, according to the board, could be derived from sheer force of numbers—numbers of the small manufacturing plants, and numbers of wage earners employed. First, by analysis of the latest census figures, the board shows that only one-half of 1 per cent of the manufacturing establishments in this country employ more than 1000 wage earners; only 1.4 per cent employ more than 500; and only 3.4 per cent employ more than 250.

The one-half of 1 per cent employing over 1000 each account in the aggregate for nearly one quarter of the total number of wage earners in manufacturing. The plants that employ 500 or less individually hire collectively 61.9 per cent of the total. Further, it is found that 87.2 per cent of the establishments employ not more than 100 workers. The total number employed by this trial employes, constituting a larger class than the 24.1 per cent engaged by the large establishments with 1000 or more workers.

"Mere size, however," says the board, "is not an accurate indicator of the degree of efficiency or progressiveness that characterizes a manufacturing concern. Undoubtedly the general level is higher in the large establishments and for good reason. In the absence of special advantages, large size can rarely be achieved and maintained unless the concern is efficiently managed. Since both large and small plants are highly successful and both large and small plants also are in the marginal group of companies that maintain their existence with difficulty, size is obviously not the determining factor. It comes down to a question of management.

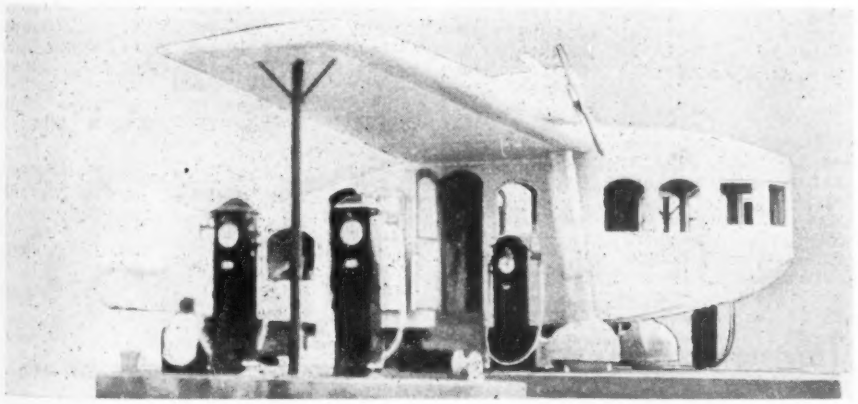
Can Adapt Technique

"There seems to be no reason why the highly developed technique of the large plant cannot be adapted to and applied in the small plant. If this were more generally done, and if the manifest advantages of the small plant were capitalized, the problem of the backward small plant would not continually thrust itself into discussions of what American industry is capable of, both in operating efficiency and in meeting its obligations to society in the matter of providing adequately for its working force. The importance of coordinated effort is obvious, particularly in relation to periods of depression."

National Steel Completes Its Building Program

National Steel Corp., Pittsburgh, completed its $36,500,000 rebuilding and expansion program when the last unit of its Great Lakes Steel Corp. plant at Detroit, a 10-inch merchant bar mill, was successfully started up last week.

The program was begun in 1929 and included, besides the construction of a $29,000,000 completely integrated steel manufacturing and finishing plant at Detroit, the purchase of 800 acres of lake-front land in Chicago district for a future plant site, and the enlarging of the Weirton Steel Co. plant at Weirton, W. Va., to secure further diversification of products. In addition, the company also acquired the Michigan Steel Corp., Detroit.



Photo, American Rolling Mill Co.

A swanky cabin monoplane makes a good filling station. Built to resemble an airplane, this station near Cincinnati attracts motorists. The frame of structural steel is covered with corrugated iron sheets. The wings provide protection from rain and sun. Attendants in the forward cabin watch for patrons; two washrooms are located amidships, and aft is a display room for oils and equipment

Exporters of Coal Protest Rise in Freight Rates

WASHINGTON — Exporters of coal appeared before the interstate commerce commission Aug. 11 to protest the 15 per cent advance in freight rates, including those on fuel, for which the railroads have petitioned.

Representing this branch of the coal industry were Arthur Hale, chairman, Coal Exporter's association; William T. Cole, of the Consolidation Coal Co. of West Virginia, and Charles W. Hendley, president, C. W. Hendley Co., Baltimore.

"All of the competing countries of northern Europe have reduced their rail rates in favor of export coal," declared Mr. Hale. "Our railroads have not. If they would give us the rates on export coal that they are making on grain we could increase our overseas coal exports by 10,000,000 tons."

Suggests "Business Basis"

J. W. Robert, accountant, Chicago, appearing on behalf of the Associated Industries of New York, said that the business interests of the country always have had competition to meet but the railroads have had to meet it from outside sources only recently. American railroads, he said, should be put on a business basis like any other American industry.

When the commission Aug. 10 resumed the taking of testimony in opposition to the proposed advance, representatives of six Middle West state railroad and utility commissions challenged the authority of the interstate commerce commission to grant an increase. These state commissions contended that a financial emergency alone was not sufficient ground for authorizing such an advance.

A representative of the Port of New York authority is proposing that whatever percentage change is made in freight rates, eastern seaboard port differentials be preserved.

Grange Official Objects

L. J. Taber, Columbus, O., representing the National Grange, opposed the rate increase, saying it would cost farmers at least $150,000,000.

At the current hearing the interstate commerce commission is represented by Commissioner Meyer and Examiner Disque. Only the opposition of eastern shippers is to be taken at Washington at this time. The hearings here may continuue 10 days or two weeks.

Other hearings will be held at Portland, Oreg., beginning Aug. 12, Atlanta, Ga., Aug. 17; Dallas, Tex., Aug. 21; Kansas City, Mo., Aug. 26; San Francisco, Aug. 17, and Salt Lake City, Utah, Aug. 24.

The proposed advance would prove a burden on structural steel without imposing an equal hardship on other structural materials, the American Institute of Steel Construction, New York, quotes a traffic expert.

Revises Switching Rates In Chicago District

Chicago—A revised switching rate basis has been prescribed for the Chicago district by the interstate commerce commission, equalizing interstate and intrastate charges effective Nov. 10. This ends the self-instituted investigation of the commission. The new rates are 3 cents per 100 pounds for switching involving one lone, 3½ cents for two lines, 4 cents for three or more lines, based upon a carload maximum of 60,000 pounds.

Unfilled Bookings of Steel Corp. Drop Further

New York—Unfilled bookings of the United States Steel Corp. as of July 31 decreased 74,507 tons to 3,404,816 tons. The drop in percentage was 2.14. Further comparisons follow:

1930			
Jan. 31	4,468,710	51,517+	1.20+
Feb. 28	4,479,748	11,038+	0.25+
Mar. 31	4,570,653	90,905+	2.03+
April 30	4,354,220	216,433—	4.73—
May 31	4,059,227	294,993—	6.78—
June 30	3,968,064	91,163—	2.24—
July 31	4,022,055	53,991+	1.36+
Aug. 31	3,580,204	441,851—	10.9 —
Sept. 30	3,424,338	155,866—	4.35—
Oct. 31	3,481,763	57,425+	1.68+
Nov. 30	3,639,636	157,873+	4.53+
Dec. 31	3,943,596	303,960+	8.35+
1931			
Jan. 31	4,132,351	188,755+	4.78+
Feb. 28	3,965,194	167,157—	4.04—
Mar. 31	3,995,330	30.136+	0.73+
Apr. 30	3,897,729	97.601—	2.24—
May 31	3,620,452	277,277—	7.11—
June 30	3,479,323	141,129—	3.89—
July 31	3,404,816	74,507—	2.14—

Tungsten Stocks Waning

J. G. Clark, Boulder, Colo., president of the Tungsten Production Co., which has mines in Colorado, Nevada and Arizona, advises his stockholders:

"The surplus of tungsten accumulated by the steel companies at the beginning of the present depression is gradually becoming exhausted. The amount of tungsten used in the United States is much greater than the amount produced.

Stokers Continue Their Improvement in Sales

June sales of mechanical stokers continued and bettered improvement developed in May, all classes of equipment participating in this gain, as the following comparison by the department of commerce indicates:

	Stokers sold	Fire tube boilers	Water tube boilers
1930			
June	151	70	81
6 mo.	570	252	318
July	150	83	67
August	115	61	54
September	128	71	57
October	92	46	46
November	71	41	30
December	53	35	18
Year	1,179	589	590
1931			
January	85	40	45
February	66	37	30
March	63	27	36
April	65	32	33
May	80	29	51
June	111	55	56
6 mo.	470	220	250

Decline Is Unchecked in Enameled Sheet Ware

Shipments of enameled sheet metal ware at 232,672 dozens in June slumped beneath any monthly figure since July of last year. Loss was marked in the white classification. Half-year totals are fairly comparable with 1930, according to the department of commerce:

In Dozens

	Total	White	Gray and Colored
1930			
June	247,861	90,151	157,710
6 mo.	1,862,342	685,559	1,176,783
July	213,420	70,718	142,702
Aug.	309,645	89,259	220,386
Sept.	297,622	97,262	200,360
Oct.	329,337	107,553	221,784
Nov.	263,365	79.719	183.646
Dec.	250,568	70,554	180,014
Year	3,526,299	1,200,624	2,325,675
1931			
Jan.	267,232	84,917	182,315
Feb.	289,205	96,812	192,393
March	312,916	103.375	209,541
April	281,339	99,218	182.121
May	264.953	106.091	158.862
June	232,672	81,588	151,084
6 mo.	1,648,317	572,001	1,076,316

Germany's Exports of Tin Plate on Par with U.S.

Exports of tin plate from Germany in May and June showed big gains and were on a par with exports from the United States, for the first

time in history. Shipments from this country in May were 6129 long tons and in June 5413, while from Germany they were 6184 and 5492 tons.

In the half year, exports from this country were 43,394 tons, about one-third as large as a year ago. From Germany they were 18,937 tons, or half again as large as in all 1930. Exports from Great Britain have fallen off in percentage less than from the United States, with a half-year total of 185,544 tons.

Steel Barrel Activity Again Turns Downward

Steel barrel production, shipments and unfilled orders declined moderately in June following a slight rise in May. Compared with the first half of 1930, the first half of 1931 was practically 1,000,000 units off, as the department of commerce statistics reveal:

	Production	Shipments	Unfilled orders within 30 days
1930			
June	651,559	638,358	319,754
6 mo.	4,178,866	4,169,517	.....
July	617,420	621,091	311,630
Aug.	553,842	552,265	237,745
Sept.	564,927	565,204	253,745
Oct.	616,121	619,558	275,778
Nov.	497,539	500,409	230,960
Dec.	412,283	406,327	188,902
Year	7,440,998	7,434,371	.....
1931			
Jan.	421,814	427,622	210,416
Feb.	450,134	449,485	231,738
March	550,583	554,332	242,626
April	591,399	600,566	253,622
May	610,788	618,801	248,138
June	554,520	549,781	239,290
6 mo.	3,179,238	3,200,587	.....

June Malleable Castings Rates are Lowest of Year

Malleable castings output, shipments and orders declined in June to the low point of the year, the industry operating in June at only 24.4 per cent of capacity. Department of commerce comparisons follow:

	Output, tons	Shipments, tons	Orders booked, tons	Per cent operated
1930				
June	39,347	43,937	33,865	40.3
6 mo.	345,620	343,423	316,042	58.5
July	30,911	32,656	30,068	31.0
Aug.	25,614	31,845	25,409	26.2
Sept.	26,528	29,223	26,251	27.2
Oct.	28,785	29,206	24,171	29.0
Nov.	27,114	25,974	27,451	27.8
Dec.	30,431	27,474	26,433	31.1
Yr.	515,003	519,801	475,925	43.6
1931				
Jan.	31,267	31,536	32,676	31.5
Feb.	33,587	32,663	32,566	34.4
March	35,210	36,677	34,331	35.9
April	36,076	37,693	36,086	36.3
May	31,344	36,686	28,208	32.1
June*	23,712	28,048	22,529	24.4
6 mo.	191,196	203,303	186,396	32.4

*Preliminary.

July Ingot Rate Lowest in Nine Years; Off 9.6 Per Cent

STEEL ingot production, at an average daily rate during July of 72,160 tons, was the lowest since December, 1921, when it was 62,707 tons, but was approximately double the rate of July, 1921, when it was 36,713 tons.

July output compares with 79,843 tons daily for June, and 112,393 tons for July, 1930. The decline from June is 9.6 per cent, which is a smaller percentage drop than from May to June, which was 17 per cent. The daily rate of production for July, 1924, was almost identical with July this year, at 72,223 tons.

Total output of open-hearth and bessemer steel ingots, as compiled by the American Iron and Steel institute, 1,876,149 tons, occupied 33.97 per cent of available capacity. In June the total computed production, 2,075,910 tons, represented 37.58 per cent of capacity. In July, 1930, the total was 2,922,220 tons, which was 56.14 per cent of capacity.

Seven months' production in 1931 totals 17,134,668 tons, 44.56 per cent of capacity, compared with 26,500,839 tons in seven months of 1930, or 73.13 per cent of total capacity. In July, 1930, production was at 56.14 per cent, the tonnage per day being 112,393 tons.

The decline since February, 1930, has been continuous except for a slight upturn during first quarter of this year, the gains of which were lost quickly in the succeeding months.

Coal for 35 Days Stored

Total stocks of bituminous and anthracite coal in industries in United States and Canada July 1 were 29,000,000 net tons, or 35 days' supply based on the June consumption of 24,600,000 tons, states the National Association of Purchasing Agents. As of July 1, by-product coke plants had 29 days' supply, steel mills 45 days, railroads 26 days, electric utilities 59 days, coal, gas plants, 68 days.

Steel Ingot Production—1930-31

95.21 Per Cent of Industry Reporting
Gross Tons

1930	Open-hearth	Bessemer	Monthly output companies reporting	Calculated monthly output all companies	No. of working days	Approximate daily output all companies	Per cent operation
Jan.	3,157,761	441,572	3,599,333	3,778,235	27	139,935	69.89
Feb.	3,335,428	508,618	3,844,046	4,035,111	24	168,130	83.98
Mar.	3,513,269	539,616	4,052,885	4,254,331	26	163,628	81.73
Apr.	3,405,671	509,234	3,914,905	4,109,492	26	158,057	78.95
May	3,265,353	528,968	3,794,321	3,982,915	27	147,515	73.68
June	2,849,079	407,586	3,256,665	3,418,535	25	136,741	68.30
July	2,430,128	353,723	2,783,851	2,922,220	26	112,393	56.14
7 mo.	21,956,689	3,289,317	25,246,006	26,500,839	181	146,413	73.13
Aug.	2,541,367	374,467	2,915,834	3,060,763	26	117,722	58.80
Sept.	2,275,910	429,975	2,705,885	2,840,379	26	109,245	54.56
Oct.	2,165,341	399,704	2,565,045	2,692,539	27	99,724	49.81
Nov.	1,807,133	300,337	2,107,470	2,212,220	25	88,489	44.20
Dec.	1,659,026	226,788	1,885,814	1,979,547	26	76,136	38.03
Total	32,405,466	5,020,588	37,426,054	39,286,287	311	126,322	63.09
1931							
Jan.	2,044,298	296,620	2,340,918	2,458,689	27	91,063	42.86
Feb.	2,085,529	296,974	2,382,503	2,502,366	24	104,265	49.08
Mar.	2,504,060	346,137	2,850,197	2,993,590	26	115,138	54.20
Apr.	2,275,404	316,668	2,592,072	2,722,479	26	104,711	49.29
May	2,083,833	301,639	2,385,472	2,505,485	26	96,365	45.36
June	1,730,109	246,365	1,976,474	2,075,910	26	79,843	37.58
July	1,561,251	225,030	1,786,281	1,876,149	26	72,160	33.97
7 mo.	14,284,484	2,029,433	16,313,917	17,134,668	181	94,667	44.56

Figures exclude crucible and electric ingots. Operating percentages for 1930 are based on capacity of 62,265,670 gross tons as of Dec. 31, 1929; for 1931 on capacity of 66,069,570 gross tons as of Dec. 31, 1930.

Industrial Men in the Day's News

Frank W. Jones, vice president, Hanover Wire Cloth Co.

HIS career opened with a warehouse connection, and includes sales manager experience in both pig iron and finished steel.

AN IMPORTANT by-product of his business career is the founding, with two associates, of the unique Steel Club of Philadelphia.

STAMINA for arduous work can be traced in part to early athletic activities, his reputation as a football player still carrying on.

FRANK W. JONES, for many years well known in the steel industry, and who recently went with the Hanover Wire Cloth Co., Hanover, Pa., was elected a director, and vice president and general manager of that company on July 31.

Mr. Jones started his career in 1901 with the H. W. Middleton Co., Philadelphia, at that time one of the leading heavy hardware and iron and steel jobbers in the East. Three years later he joined the Philadelphia district sales organization of the Carnegie Steel Co., under the late James B. Bonner.

Five years later he left to go with the Eastern Steel Co., later becoming that company's manager of sales for the Philadelphia district, including the South and the Pacific Coast. Mr. Jones also was general manager of sales for the Warwick merchant pig iron furnaces at Pottstown, Pa., operated by the Eastern Steel Co. until the lease was cancelled in 1926, followed later by dismantling of these furnaces.

Mr. Jones was one of the original three organizers of the Steel Club of Philadelphia, one of the most unusual social clubs in the steel industry. This club is composed of the Philadelphia district representatives of practically all steel companies, and at least once a year it provides affairs at which prominent representatives of steel producing and consuming companies from far and wide are present. He served a term as president of this club. He also is a member of the Union League of Philadelphia, and the Manufacturers club of Philadelphia.

Mr. Jones is an ardent baseball and football enthusiast. In his younger days he indulged in both these pastimes. In football, as end on the famous undefeated teams which represented the city of Shamokin, Pa., he established a reputation which continues to be remembered by sports writers. Mr. Jones resides at Germantown, Philadelphia, where he is an active layman in the Presbyterian church.

H. MORGAN, recently assistant chief engineer in charge of the drafting room of the Palmer-Bee Co., Detroit, and prior to that on the engineering staff of the Webster Mfg. Co., Chicago, now affiliated with the Weller Mfg. Co., has been made special engineering representative for the Weller company, in Detroit. He has offices at 10228 Woodward avenue, Detroit.

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R. E. Walker, formerly in the Kansas City, Mo., office of the American Rolling Mill Co., Middletown, O., has been placed in charge of the company's office at 738 Mayo building, Tulsa, Okla.

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T. R. Langan, since last August assistant northeastern district manager of the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., with headquarters at New York, has been made district manager there. Mr. Langan was in the Philadelphia, Baltimore, Buffalo and Syracuse offices of the company before going to New York.

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E. M. Anderson has been appointed purchasing agent of the Massey-Harris Co. division at Racine, Wis., manufacturing tractors and tractor implements. Until now he has been connected with the Massey-Harris plant at Batavia, N. Y.

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T. J. Foster, of the National Bridge Works, New York, has been elected director and assistant treasurer of the American Institute of Steel Construction, New York, succeeding L. L. Gadd as assistant treasurer, according to the institute's publication.

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R. A. Weaver, president, Ferro Enamel Corp., Cleveland, sails for Europe, Aug. 16, to visit branches of the company in England, France, Germany and Holland.

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Martin B. Armstrong, president, Thomas & Armstrong Mfg. Co., London, O., has resigned, and has been succeeded by R. W. Boyd, president of the London Exchange bank and treasurer of the company, which manufactures sheet metal farm equipment.

C. A. Bangert, shop superintendent of the company, has resigned, going

with the W. E. Lamneck Co., Columbus, O.

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Edward L. Ryerson, president of Joseph T. Ryerson & Son Inc., Chicago, has been appointed a member of the Chicago Community Trust.

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H. L. Ogg, president, Automatic Washer Co., Newton, Iowa, has resigned. He is succeeded by W. Neal Gallagher, vice president and general manager.

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J. B. Collum has resigned as a director of the Harbison-Walker Refractories Co., Pittsburgh, and has been succeeded by W. Forman Bickel, treasurer.

The Business Week In Washington

RAILWAY LABOR EXECUTIVES' association has filed a statement with the interstate commerce commission claiming that railway wages are not too high and that the vast majority of railway men today do not earn enough compared with other industries.

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The navy department has announced a new policy which will mean that as far as possible the navy will be organized so that expansion only will be necessary in the event of war.

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The President's emergency committee for employment has launched a plan to keep all children under 16 years of age in school, so as not to compete in the labor market.

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Senator Harris, of Georgia, is opposing the proposal to have the antidumping section of the tariff law apply to imports of sulphate of ammonia, claiming the proposal is sponsored by the steel industry.

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During July, 406 commercial vessels passed through the Panama canal, from which tolls totaling $1,848,638.45 were collected, compared with 488 vessels paying $2,180,511.82 the previous July.

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During the first half of 1931 aircraft production was nearly as great as during the same period of last year, according to Col. Clarence M. Young, assistant secretary of commerce for aeronautics.

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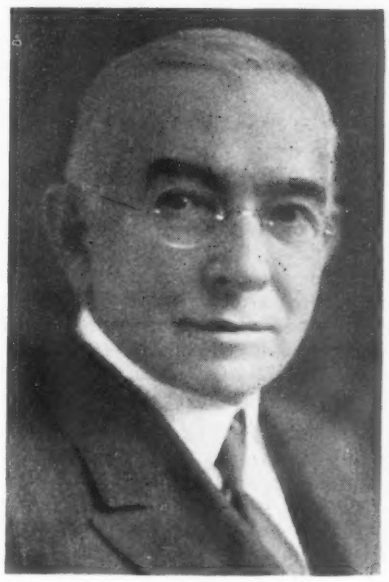
Final figures of the department of commerce show that the dollar value of America's foreign trade, both imports and exports, again declined in June and during the six months ended June 30, although June imports held up better than has been the average during the last year.

Obituaries

ALVA C. DINKEY, president, the Midvale Co., Philadelphia, and former president of the Carnegie Steel Co., died at his home in Wynnewood, Pa., Aug. 11. The immediate cause of his death was heart trouble. He had been in a weakened condition since an attack of pneumonia three months ago.



Alva C. Dinkey

Mr. Dinkey, who was born at Weatherly, Pa., Feb. 20, 1866, entered the service of the Carnegie Steel Co. as water boy at the Edgar Thomson works in May, 1879. Leaving the company in 1885, he returned four years later as secretary to the superintendent of the Homestead works. He became general superintendent in 1901 and on Aug. 1, 1903, was elected president of the Carnegie company.

In 1915 Mr. Dinkey resigned, becoming president of the Midvale Steel & Ordnance Co. When in 1923 some of the Midvale properties were acquired by the Bethlehem Steel Corp., he headed up the remaining properties known as the Midvale Co., a position he retained until his death.

Mr. Dinkey was a director of the Midvale Co., the Baldwin Locomotive Works and the American Iron and Steel institute. He was a member of the Carnegie Veterans association and of many clubs in the Pittsburgh, Philadelphia and New York districts.

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John W. Collier, inspector of ordnance for the Bethlehem Steel Co., died at Easton, Pa., Aug. 5.

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Frank Rockwell, 62, owner of the Grand Rapids Ornamental Iron and Wire Works, Grand Rapids, Mich., died July 29.

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Harry R. Armstrong, 72, president of the National Iron Works, Duluth, was drowned at Laguna Beach, Calif., July 31.

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William D. Blackmer, 55, mining engineer and brother of C. F. Blackmer, vice president of the American Steel & Wire Co., Cleveland, died at Nogales, Ariz., Aug. 4.

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Otto J. Lof, for 37 years an employe of the Norton Co., Worcester, Mass., and lately a representative in Europe, died Aug. 7 in Stockholm, Sweden.

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Frank D. Moore, 75, treasurer of the Ashland, Ky., works of the American Rolling Mill Co., died at Cincinnati recently. He had been with the company 45 years.

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Edward W. Kerr, for 30 years one of the principal department managers of Pratt & Letchworth Inc., Buffalo, until his retirement two years ago, died at Buffalo, Aug. 8. He was 65.

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Eugene J. Eslein, 44, one of the founders and former vice president of the Esline Co., Oconomowoc, Wis., a pioneer manufacturer of portable steel structures for private garages, summer homes, etc., died Aug. 5 after an illness of a year.

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William Alexander Ritchie, 78, superintendent of the Pullman Co. at Montreal, Que., until ill health caused his retirement, and originally supervisor of certain phases of car construction, died at Montreal, July 31.

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Samuel Tobias Wagner, 70, consulting engineer, Reading railroad, and vice president of American Society for Testing Materials, died at his home in Philadelphia, Aug. 7. He was born in Philadelphia in 1861 and was a graduate of the University of Pennsylvania. Prior to becoming chief consulting engineer for the Reading railroad in 1913, he had been affiliated with the Phoenix Iron Co., Phoenixville, Pa.

Limestone Employes Return

Youngstown, O.—One hundred men returned to work this week at the Bessemer Limestone & Cement Co.'s plant at Bessemer, Pa.

Here and There in Industry

GREAT LAKES STEEL CORP. and Michigan Steel Corp., divisions of National Steel Corp., Pittsburgh, have moved their executive and sales offices from 2400 Union Guardian building, Detroit, to a recently constructed office building adjacent to the Great Lakes mill buildings, foot of Tecumseh road, Ecorse, Mich. Mail address is Ecorse, Detroit, and the new telephone is Vinewood 2-3650.

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Thomas W. Hooley Metal Works, New Orleans, La., has filed notice of dissolution.

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Logan Iron & Steel Co., Philadelphia, has moved its offices to the Broad Street Station building, Sixteenth street and Pennsylvania boulevard.

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United States Steel Corp., New York, has opened district sales offices at 509 First National Bank building, Chattanooga, Tenn., in charge of L. P. Guice.

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National Steel Barrel Co., Cleveland, has recently moved its New Orleans, La., plant to the Industrial canal district and doubled its operating capacity. R. E. Hurd is manager of the New Orleans branch.

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General Drop Forge Co. Inc., Buffalo, has appointed Copeland-Daniels, 503 Curtis building, 2842 West Grand boulevard, Detroit, it sales representative in Michigan, northwest Ohio and northern Indiana.

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Silent Glow Oil Burners Corp., Hartford, Conn., has established a branch plant at Montreal, Que. A convention of salesmen, dealers and employes was held Aug. 3 when the new branch was completed and placed in service.

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Detroit-Michigan Stove Co. and Silent Automatic Corp., both of Detroit, have completed a joint merchandising arrangement covering a complete warm air heating unit, consisting of a specially designed warm air furnace and a standard silent automatic burner.

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Shook & Fletcher Supply Co., Brown-Marx building, Birmingham, Ala., has been appointed southern sales agent for Mackintosh-Hemphill Co., Pittsburgh, Pa. It will handle rolling mill machinery, as exclusive agent in Tennessee, North Carolina, South Carolina, Georgia, Florida, Alabama and Mississippi.

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Falk Corp., Milwaukee, has received an order from the New York Shipbuilding Co., Camden, N. J., for the complete main reduction gear equipment for the U. S. S. TUSCALOOSA, light cruiser No. 37. Specifications for the gear equipment include four speed reduction units weighing 73,000 pounds each.

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Robert W. Hunt Co., 2200 Insurance Exchange building, Chicago, engineer, has inaugurated an X-ray laboratory service for the determination of quality in engineering material. The laboratory is equipped with facilities of the latest design and products of any size can be examined for defects. Materials up to 3½ inches in steel and 8 inches in aluminum can be X-rayed.

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Creamery Package Mfg. Co., Chicago, will transfer the bottle washing machinery plant maintained for several years at 241 Madison street, Waukesha, Wis., to a new $50,000 addition being completed in connection with its machinery plant in Lake Mills, Wis. This move will concentrate all its Wisconsin manufacturing operations at one point.

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Central Specialties Co. has been organized at Westfield, Mass., and has bought the Central Machine Co. Charles H. Spencer, formerly of West Springfield, is treasurer, and S. F. Cushman, West Springfield, is president and general manager. It will conduct a general machine business and has developed a process for spraying hot metal on wood and metal surfaces.

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Cooper-Bessemer Corp., Mt. Vernon, O., has bought back the Chapman gas producer division of the former Chapman-Stein Co., which was acquired in October, 1930, by the Surface Combustion Co., Toledo, O. The transaction involves no change in manufacture as Chapman gas producers have been and will continue to be manufactured in the shops of the Cooper-Bessemer Corp. These producers make gas from coal for use in gas-burning furnaces. Because the Surface Combustion Co. specializes in the manufacture of appliances for burning natural gas it was found advantageous to dispose of the producer division. This also includes the Chapman floating agitators.

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E. F. Houghton & Co., Philadelphia, announce resumption in September of the *Houghton Line*, a monthly house publication for almost 20 years. It was suspended in 1929 after the death of Charles E. Carpenter, president of the Houghton organization, who has been its editor. Louis E. Murphy, now president, will be directing editor. Reasons for resumption are stated "partly because its country needs it and partly for the joy of free discussion."

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E. & G. Brooke Iron Co., Birdsboro, Pa., has decided to add to the standard analyses of pig iron which it offers to the merchant trade, the copper free low phosphorus grade. The company first produced low phosphorus pig iron in its blast furnace in June, 1930. An additional run on low phosphorus iron has been made this year. The low phosphorus iron is copper free and has a manganese content of 1.20 to 1.70 per cent. The Brooke furnace, which was put out of blast July 16, now is undergoing minor repairs and will be relighted when present stocks are depleted.

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Walsh Fire Clay Products Co., and the Buckeye Clay Products Co., North Toledo, O., have been consolidated with the Laclede-Christy Clay Products Co., St. Louis. Laclede-Christy purchased the assets of the other companies for a reported price of $2,000,000, the consideration being, it is understood, chiefly in treasury stock of the buying company. Organized in 1844, Laclede-Christy has several plants and clay deposits in Missouri and a plant at Rochester, Pa. Personnel of the Buckeye company will be retained and operations may be expanded because of the growth of Toledo as a glass manufacturing center.

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S-Line Corp., Oconomowoc, Wis., has been organized to continue the business of manufacturing portable steel buildings, airplane hangars, etc., of the Esline Co., Milwaukee and Oconomowoc. All of the physical assets of the Esline Co. have been purchased from the receiver and production will be resumed at once. George L. Kohn, vice president of the old company, in charge of its sales, is president of the new corporation, with Elmer Weber vice president, John Bosshard, secretary, and J. F. Kettenhoefen, treasurer. It is planned to add a general line of sheet steel products to the steel building line.

MIRRORS of MOTORDOM

DETROIT

FORD MOTOR CO.'S manufacturing activities continue down while assembly has declined further, last week being 4500 units per day for 3 days. Assembly continues from the large inventory of parts.

From the standpoint of the steel supplier, Ford is out of the market and gives promise of being so for at least another month. August's steel orders for the Detroit area consequently are light with this large purchaser out of the picture, though should he resume in September some late August steel requirements would be issued.

Ford's open hearths and rolling mills still are closed, but behind them is the stock of slightly over 100,000 tons of billets, bars and semifinished steel. The one active Ford blast furnace continues to add to a large stock of cold iron.

However, steel stocks at Ford's from the outside mills are extremely small, their volume being carefully worked down sometime ago in anticipation of the August restriction in production. Only occasional fill-in and maintenance lots of steel are placed.

Parts are being shipped to outside assembly plants. Kelsey-Hayes is busy on Ford wheels, but for shipment only to outside Ford assembly plants.

Rear Gas Tank for Ford

When Ford does resume it is now definitely established that the revised Model A will have a larger capacity gasoline tank placed at the rear of the car.

It is reasonable to expect along with this that the car will have a longer wheelbase. There appears some basis, too, that the hood will be deeper, the body longer and slightly wider, the windshield slanting, increased piston displacement, a slightly longer engine and a higher top speed of approximately 75 miles per hour maximum. A new type of spring suspension is expected.

A new form of motor suspension is possible for the coming Ford 4-cylinder job, as well as adoption of free wheeling.

The Ford eight, from concrete evidence, seems farther in the immediate background, yet there are numerous indications that it may make its appearance about the time of the 1932 January shows. Engineering, tool and die divisions at Dearborn continue to develop the eight.

Expect Smaller Lincoln

Lincoln may be expected to drop down into a slightly lower priced field with a 135-inch wheel base model before long, yet retain position in its present price field by bringing out a 12-cylinder model.

Murray Body is showing signs of anticipating a large volume of business, probably Ford's.

Chevrolet has issued contract needs for steel for its 1932 model, specifications have been entered on the mill books, but delivery is not designated until this fall.

These requirements indicate moderately heavier parts, in several instances for the 1932 model. It is confidently presumed that the Chevrolet will remain a six despite speculation that the number of cylinders would be changed. As previously reported, the new Chevrolet will have a new type of transmission.

Current material orders from Chevrolet are extremely light. Its plants are working three and four days a week, the general average being three. Assembly is at the rate of 3500 units, 4 days.

For example, the forge plant will work four and possibly five consecutive days, then lay off for a period so that its average operations are in keeping with assembly output.

Buick, too, has just ordered its steel for the 1932 model, also for fall release. Buick will cease production on its current line about September, giving its dealers a chance to clean up stocks.

Studebaker's new car will be lighter, smaller and somewhat reduced in price. The company recently began plans for retooling.

Hudson-Essex has just changed sales managers. Before long the new series from this manufacturer will be before the public. Specifications for material have run out on the present model. An important change in the Hudson-Essex electrical system is reported.

To Improve Chryslers

Chrysler will announce "floating power," similar to that now in use on its new Plymouth, for its six-cylinder lines some time around the first of the year.

Plymouth's activity continues to be a salvation this month to many parts makers. Both Budd and Briggs are humming on Plymouth work. It was in error to state recently in these columns that Murray had taken some of the Plymouth body work.

Plymouth is producing at about 1200 units a day, just short of the extended capacity of 1500, but anticipates raising this figure before long to 10,000 units weekly.

Plymouth is considering the use of some of the Dodge manufacturing facilities and is reported to have under way the use of one of the Dodge assembly lines. Part of the Dodge plant is being used for certain Plymouth parts output.

The Plymouth foundry is not as busy as the two Port Huron, Mich., foundries which are on its engine block and other casting work.

EDITORIAL

Why Not Invest Idle Funds In Good Ideas?

RECENTLY an eminent automotive engineer declared that the country needs new products which the public wants to buy. This implies a challenge to inventors that they should come forth with new ideas which will furnish the basis for the products the engineer says are needed.

A number of members of the engineering profession have replied to the challenge by stating that the burden for developing new products does not rest on the shoulders of designers as much as it does upon those of the management of manufacturing concerns. They argue that the stock of good ideas in the minds of scientists, inventors and others is ample for present purposes, but that industry is not willing to risk money in developing them. It is claimed that when business was good manufacturers were inclined to spend money in the hope of reaping returns in the distant future, but that now they refuse to spend a cent in developing a new product unless immediate profits are in sight.

This charge probably is justified, but in defense of many industrial executives it must be said that under present conditions they are not able financially to bear the cost of development work, the fruits of which are sure to be deferred for several years. Many companies are forced by circumstances to spend money only where it will yield quick returns.

Risk in Backing Promising Inventions Is No Greater Than in Stock Gambling

Yet while industrial capital may be temporarily withdrawn from the support of this work there are other sources from which the necessary funds could be obtained. As one writer to the editors of STEEL declares, "there are millions of dollars being spent in speculation, gambling and other forms of chance which might be used more profitably in backing promising inventions." There is considerable merit—besides ample precedent—in the suggestion that gambling in the pioneering of ideas is more worthwhile than risking money on the behavior of the stock market or the turn of a card.

Queen Isabella sold her jewels to provide funds to gamble on the chance that the son of a Genoese wool comber might find a new route to India. It turned out to be a good proposition for Spain. Queen Elizabeth financed and otherwise encouraged Drake, Raleigh and others in explorations which enlarged the area of England's trading empire. The late J. P. Morgan backed Nikola Tesla in his work on the secrets of electricity and while it is not known whether the eminent financier profited in ways other than receiving genuine satisfaction for his deed, it is certain that the world benefitted tremendously from Tesla's creations.

Against these illustrations of successful investment there are many cases of thwarted hopes and costly delays caused by the fact that the man with a good idea could not find anyone willing to risk the required capital. The Wright brothers had to go to France for support of their flying machine because American assistance was denied them. Recently Charles M. Schwab said he wished he could live over one episode of his life—that in which he refused to finance the Wrights in aviation. Undoubtedly there are thousands of cases in which lack of capital rather than the absence of good ideas has deprived the world of benefits.

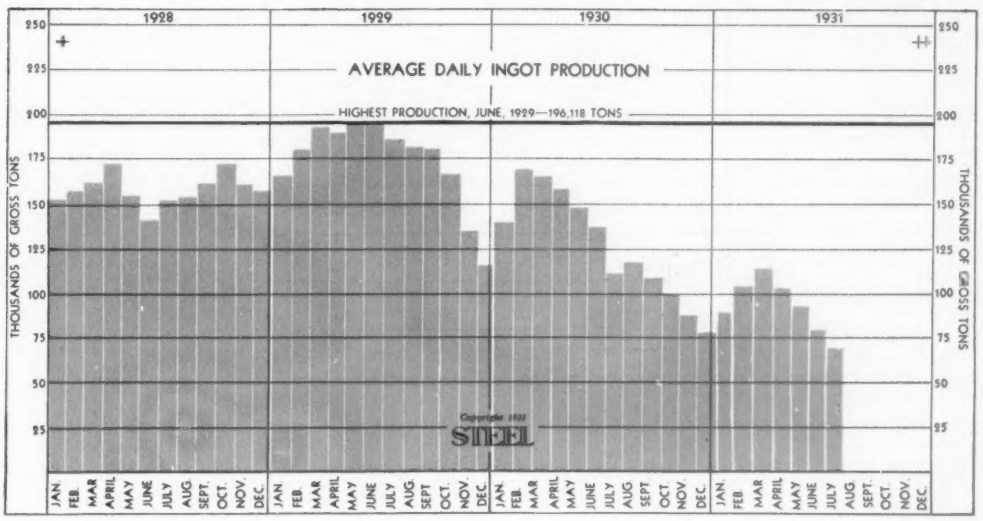
Country Needs More Systematic Method Of Assuring Support for Good Ideas

Capital is perhaps unduly wary of inventors seeking support. Anyone who reads *The Official Gazette* of the patent office must readily note the high percentage of freak "inventions" which are absolutely worthless and wholly impractical. Much of the thinking of the lunatic fringe of society finds its way into patent papers. Unfortunately the number of idiotic ideas tends to weaken the appeal of those capable inventors whose creations have merit.

This country would benefit in a large way if it had a competent agency for bringing together genius for invention and capital for investment. Within the week two letters asking for assistance in backing inventions and one appeal for an opportunity to invest "from $500,000 to $5,000,000 in developing a marketable product" have passed over this desk. These furnish casual evidence of the demand for a systematic clearing house through which the idea and the money could be brought together.

Considering the amount of capital now seeking investment, it would seem that the field of invention offers unusual opportunities to those who can employ discrimination in selecting ideas possessing merit.

THE BUSINESS TREND



1930

July	112,393
June	136,741
May	147,515
April	158,057
March	163,628
Feb.	168,130

1931

July	72,160
June	79,843
May	96,365
April	104,711
March	115,138
Feb.	104,265

July Output Is Far Above Low Point of 1921

IN SEEKING comparisons for the extremely low figures on iron and steel production for July, many observers have dug into the records of 1921. They show that last month's output of steel ingots and pig iron was the lowest since the postwar depression of 10 years ago.

However, the July, 1931, showing is better than that of July, 1921, in several respects. The daily average output of steel ingots last month was 72,160 tons—almost twice the corresponding figure of 36,713 for July, 1921. The daily average for pig iron last month was 46,470 tons against 27,890 in July, 1921.

A better measure is found in the relation of production to capacity. In July, 1921, pig iron output was at the rate of only 19.5 per cent of capacity and steel ingot output was at the rate of only 18.8 per cent. In July, 1931, the corresponding percentages were 32.3 for pig iron and 33.9 for steel ingots.

Ingot Rate Higher Despite 10,000,000-Ton Increase in Capacity

In the case of pig iron this comparison is not particularly striking because the capacity of blast furnaces has not changed appreciably. The American Iron and Steel institute reported the annual capacity in 1921 at 52,487,825 tons and as of Dec. 31, 1930, at 52,515,875 tons. The gain of only 28,050 tons is surprisingly small.

On the other hand steel ingot capacity as of Dec. 31, 1930, was 68,980,181 tons compared with 58,416,680 tons in 1921. Had the steelmaking capacity remained near 1921 levels as blast furnace capacity did, then July's output of steel ingots would figure at almost 40 per cent of capacity. Disappointing as is the present rate of steelworks operations, it is far better relatively than that of blast furnace activity.

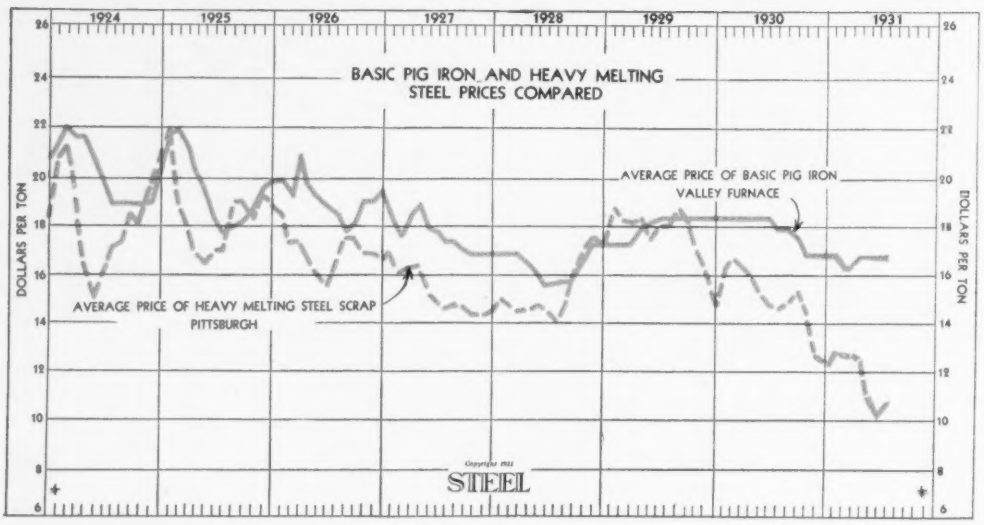
Nothing new has occurred thus far in August to change the outlook for steel demand. The industry is drifting along at 30 per cent of capacity or slightly above, waiting for customers' requirements to crystallize into tonnage for mill schedules in the fall.

Steel Demand Unchanged But Prices Hold in Dull Month

The moderate drop of 74,507 tons in the unfilled orders of the United States Steel Corp. is somewhat reassuring in that the decline was less than last month. With the automobile industry in a vacation period, the railroads holding purchases to immediate necessities and the oil and gas interests inactive in expansion, hope for current consumption rests heavily on the building and miscellaneous industries. Awards of structural steel still are ahead of last year although construction in general is off.

Prices still are tobogganing although here and there one finds commodities in which prices are firming steadily. Bradstreet's index on Aug. 1 registered a gain of 2 cents due to increases in four groups—livestock, hides and leather, provisions and building materials. This slight gain followed an increase of 13 cents in June when prices in seven groups advanced. Meantime softness continues in the majority of commodities.

Steel prices are holding well, STEEL's composite retaining its recent small gains at $31.06.



Basic Pig Iron

	1931	1930
July	$17.00	$18.20
June	17.00	18.50
May	17.00	18.50
April	17.00	18.50

Heavy Melting Steel

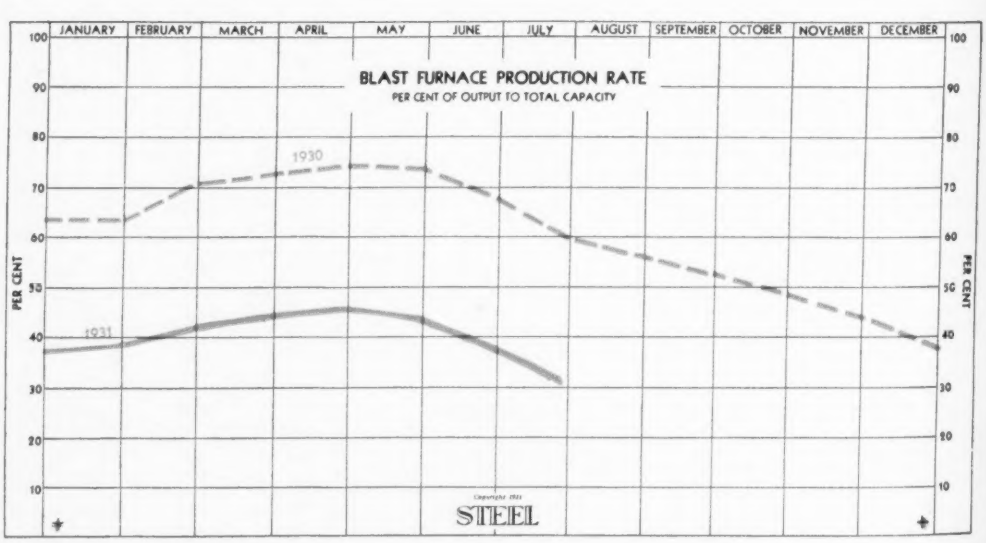
	1931	1930
July	$10.75	$14.90
June	10.30	15.10
May	11.25	15.40
April	12.50	16.05

Heavy Melting Steel Rebounds from Low To Reduce Spread between Prices

Heavy melting steel in July reacted from the new all-time low it had set in the previous month and made a slight recovery. From the low of $10.30 in June it recovered to $10.75. In spite of a quiet market the scrap quotation was holding firmly at the turn of the month. In a like status of quietude was basic pig iron, which remained at $17.00, valley furnace, for the fourth consecutive month. A year ago the spread between heavy melting steel and pig iron was from $14.90 to $18.20, and two years ago, from $18.45 to $18.50. On the last occasion of a $10.75 quotation for heavy melting steel, in July, 1904, basic pig iron, valley furnace, was quoted at $11.35.

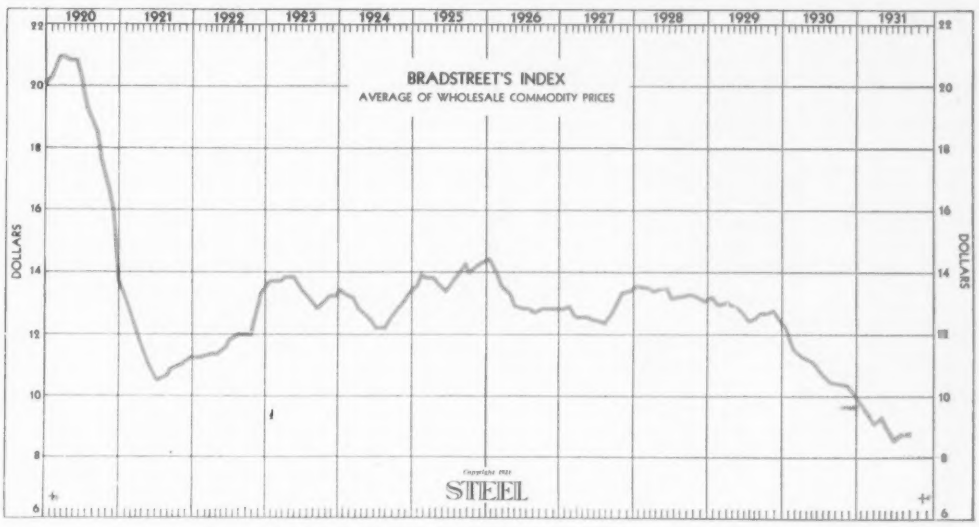
With Only 82 Stacks in Blast as July Ends, Operating Rate Drops

The July rate of operation in the pig iron industry was 32.3 per cent compared with 37.9 per cent in June and 46.5 per cent in April. A year ago operations were at 60.3 per cent. While declines are normal in July, the loss of nine more stacks caused the total in blast to recede to 82, the lowest since the end of August, 1921. The high for the year to date was 116, on March 31. Three merchant stacks were blown in and in the steelworks class eight became inactive as against the addition of two. Of the 1,440,575 tons produced during July 351,680 tons were made at merchant stacks and 1,088,896 tons at nonmerchant stacks. Pennsylvania and Alabama suffered the principal losses from the active list.



Per Cent

	1931	1930
July	32.3	60.3
June	37.9	69.3
May	44.7	74.2
April	46.5	75.4
March	45.4	74.5
Feb.	42.5	72.1
Jan.	38.4	65.0



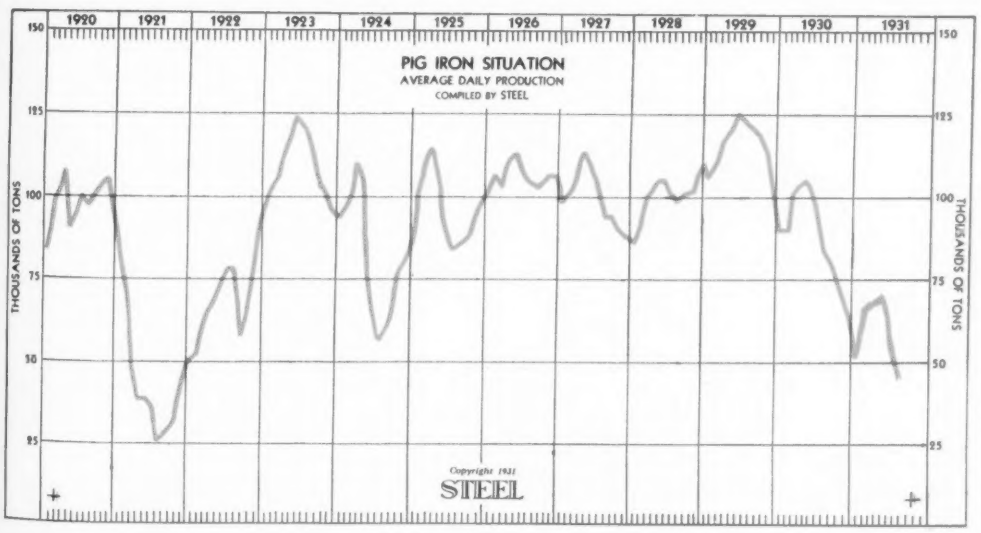
	1931	1930
Aug. 1	$8.79	$10.45
July 1	8.77	10.56
June 1	8.64	10.77
May 1	8.91	10.94
April 1	9.23	11.18
March 1	9.17	11.22

Commodity Index Registers Very Slight Rise in Second Consecutive Gain

Conflicting price trends which nearly balanced in their effects were indicated by Bradstreet's index for July. Small decreases were topped by moderate rises, and the commodity price composite gained two cents to stand at $8.79 on Aug. 1. Coming after a 13-cent gain in July, it appeared as a favorable sign, but detailed figures show that only four of the 13 groups showed gains against eight losses and one instance of no change. Livestock, hides and leather, provisions and building materials made the gains. In the previous month hides and leather and six other groups, including metals, which dropped in July, supplied the force of the upturn.

Decline in Pig Iron Production Causes New Low for 10-Year Period

Output of coke pig iron in the United States went through its third month of decline in July and by means of a 14.9 per cent drop from the previous month reached the lowest level in nearly 10 years. The daily rate was 46,470 tons, compared with 54,599 tons in June and 85,110 tons in July, 1930. After gains from January to April the rate reached its spring peak with an average of 66,986 tons per day. For the first seven months of the year the daily rate was 59,144 tons, compared with 98,858 tons in the same 1930 period. Total output for seven months, 12,538,698 tons, was 60 per cent of that for the same period in 1930, when output totaled 20,943,055 tons.



	1931	1930
		Tons
July	46,470	85,110
June	54,599	97,817
May	64,355	104,564
April	66,986	106,371
March	65,448	104,930
Feb.	61,114	114,942

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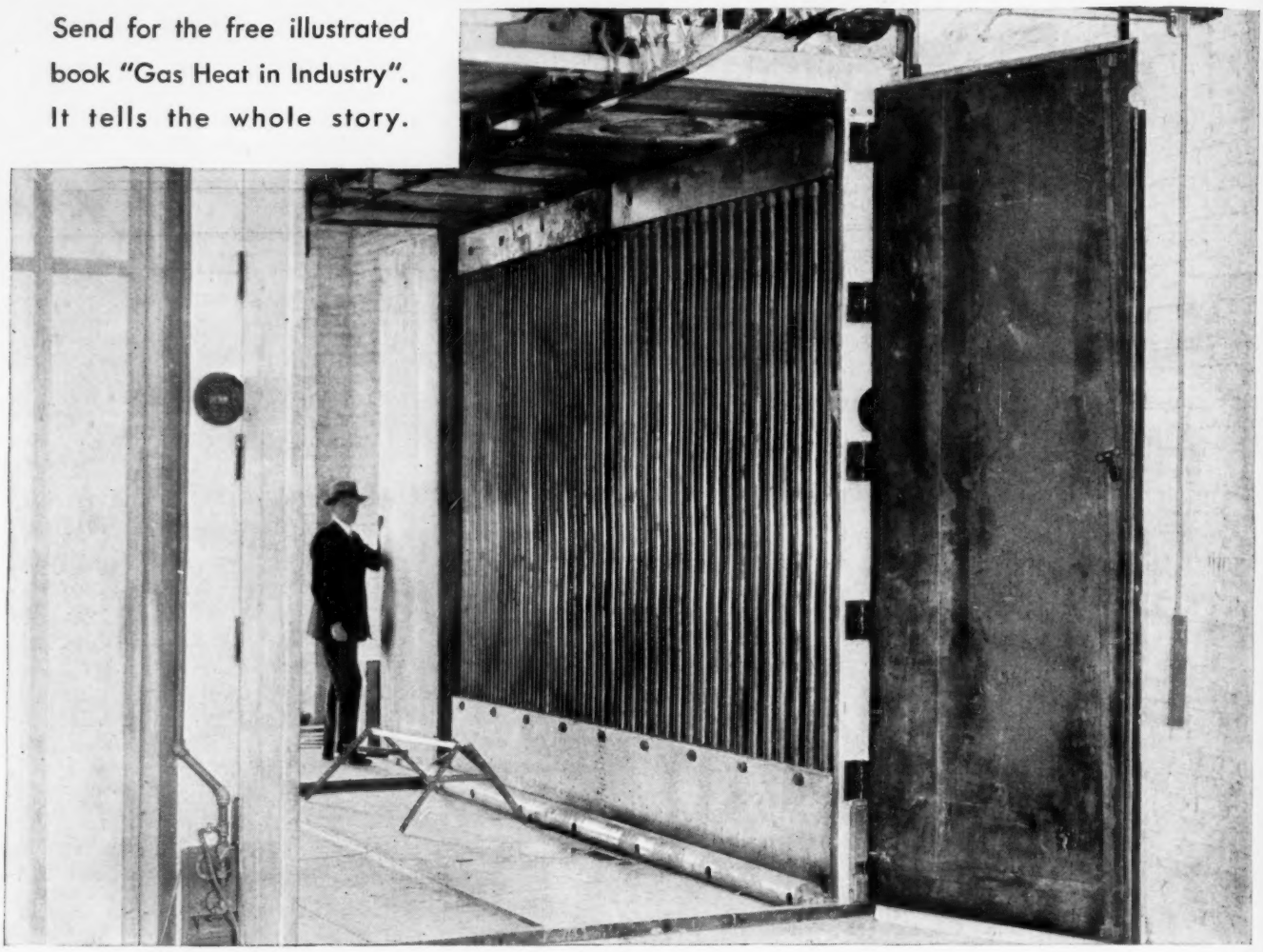

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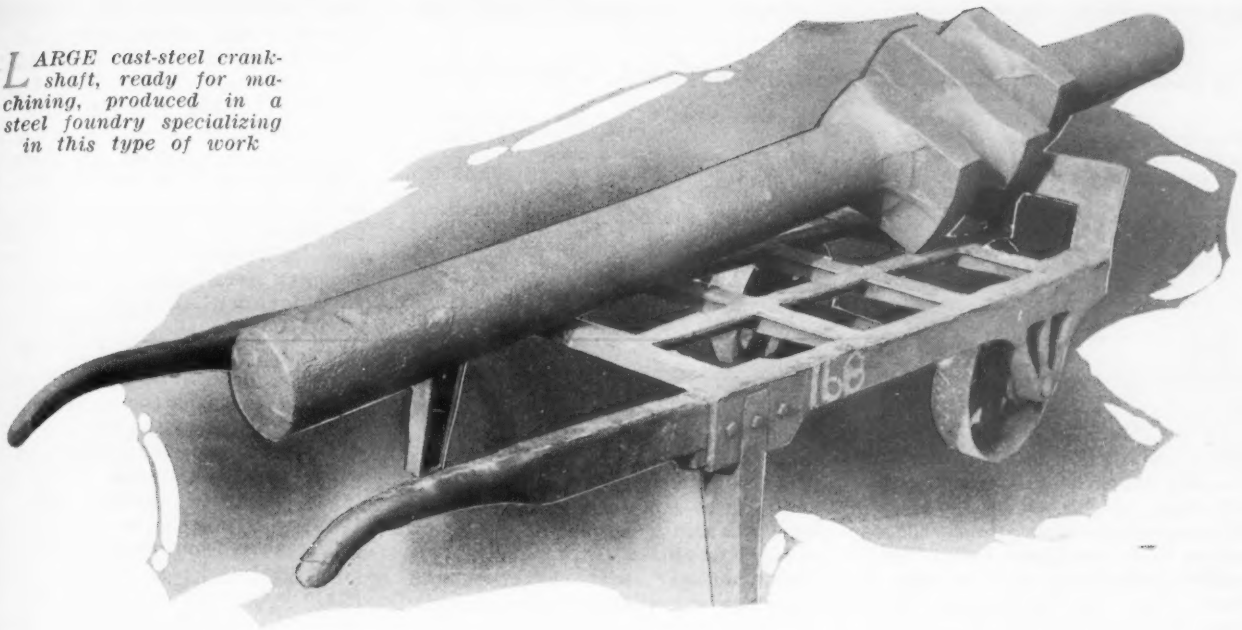


LARGE cast-steel crankshaft, ready for machining, produced in a steel foundry specializing in this type of work

High Strength, Toughness Shown by Cast-Steel Crankshafts

PROBABLY few machine parts are required to stand up under the severe operating conditions imposed upon an engine crankshaft. Whether the crankshaft is in an airplane engine rotating at 3000 revolutions per minute or in a heavy-duty air compressor at a speed of 300 revolutions per minute, it must be dependable. To insure against breakage, the crankshaft must pass a rigid inspection which will detect any surface or other defects, however small, that might allow highly localized stresses to develop, thus resulting in failure. The laminated structure of a forged shaft must not at any point run transverse to the length of the shaft. Even while rotating rapidly under varying load, an infinite number of torsional, transverse, and longitudinal stresses are applied to the shaft, many of them alternating and many of them pulsating, but all tending gradually to wear out the shaft. In spite of the rigid inspection tests and all the other precautions taken, crankshaft failures still occur, occasionally wrecking an engine, other times stopping operations in a manufacturing plant by shutting off the power, or causing other damage resulting in costly repairs or in valuable time lost.

Gating arrangement for cast shaft

It has been noted during the past few years and more especially during recent months, that certain manufacturers of reciprocating pumps and air compressors have changed from forged to cast-steel crankshafts. Some steam engine builders at present contemplate changing to cast steel, and certain users of large rotor shafts for electric generators are considering the adoption of cast steel due largely to the fact that when the rotor shaft is slotted for the laminated armature core, the cast-steel shaft is not weakened to any pronounced extent, since a steel casting has uniform strength in all directions. Furthermore it is likely that the slots may be cored out of the casting, thus

Physical Properties of Low-Carbon Cast Crankshafts

Tempered degrees Fahr.	Yield point lbs./sq.in.	Ult. tens. strength, lbs./sq.in.	Elongation, % in 2 in.	Reduction of area, % in 2 in.	Brinell hardness	Izod impact strength, ft.-lbs.
1300	55,000	80,000	30	63	167	46
1200	60,000	86,000	28	60	175	38
1100	66,000	94,000	24	55	190	25
1000	70,000	101,000	20.5	51	204	13
900	74,000	108,000	17.5	45.5	220	8
800	82,000	113,000	16	41.5	231	6.5
700	88,000	119,000	14	35	242	5
600	95,000	124,000	11	25	248	4
500	100,000	126,000	8.5	16	253	3

saving considerable machine work.

An idea of the wide variety of sizes and types of cast-steel crankshafts being produced today is shown in accompanying illustrations. These castings were produced by a steel foundry specializing in this type of work. The accompanying table shows physical properties regularly obtained by this foundry in a low-carbon steel used for casting crankshafts.

Another prominent steel foundry which makes crankshafts for air compressors has proved to customers that with a proper design, and suitable pattern equipment, it is possible to make cast-steel crankshafts sound and free from flaws that might impair the quality of the casting. Proper molding practice is important and the lower illustration on Page 31 shows the method of heading and gating used on a two-throw, air compressor cast crankshaft which recently has been placed in service.

Casting Is Sound

Sections of the shaft were taken through the heads, and transverse to the length, as shown in an illustration on Page 33 and revealed that the body of the shaft was sound and free from all visible traces of impurities. Sections of the shaft also were taken longitudinally on the center line and bisecting the heads. In no case did the bottom of the pipe come nearer to the shaft than 2 inches, so that no visible traces of piping in the head remained in the shaft. In this way, the crankshaft was made homogeneous with approximately the same physical properties throughout. This permits the designing engineer to economize by using a lower safety factor than a nonuniform structure would permit.

Structure Must Be Refined

Heat treatment is an important phase in the manufacture of cast crankshafts. After trimming and rough dressing the castings, they are annealed in an electric heat treating furnace on the following cycle: Heated 3 to 4 hours until 1640 degrees Fahr. is reached; soaked at this temperature for 4 hours; cooled in the furnace to about 350 degrees Fahr.; and then withdrawn and cooled in air. This heat treatment produces a well-refined structure, with the pearlitic constituents thoroughly diffused throughout the ferrite matrix. This structure always is accompanied by high strength and toughness. The fatigue limit of this material, or the maximum stress which will endure an infinite number of cycles, or complete revolutions of the shaft without failure, is approximately 34,000 pounds per square inch, or 0.42 of the tensile strength; this being practically the same as that of good quality rolled steel.

The tensile strength of this steel after annealing is 80,400 pounds per square inch; yield point, 46,700 pounds per square inch; elongation in 2 inches, 27.0 per cent; and reduction of area, 43.3 per cent.

It should be borne in mind that the above properties are obtained from a low-carbon steel without the use of alloy elements and with a simple annealing treatment, and therefore represent one of the lowest strength steels being produced in the steel foundry industry.

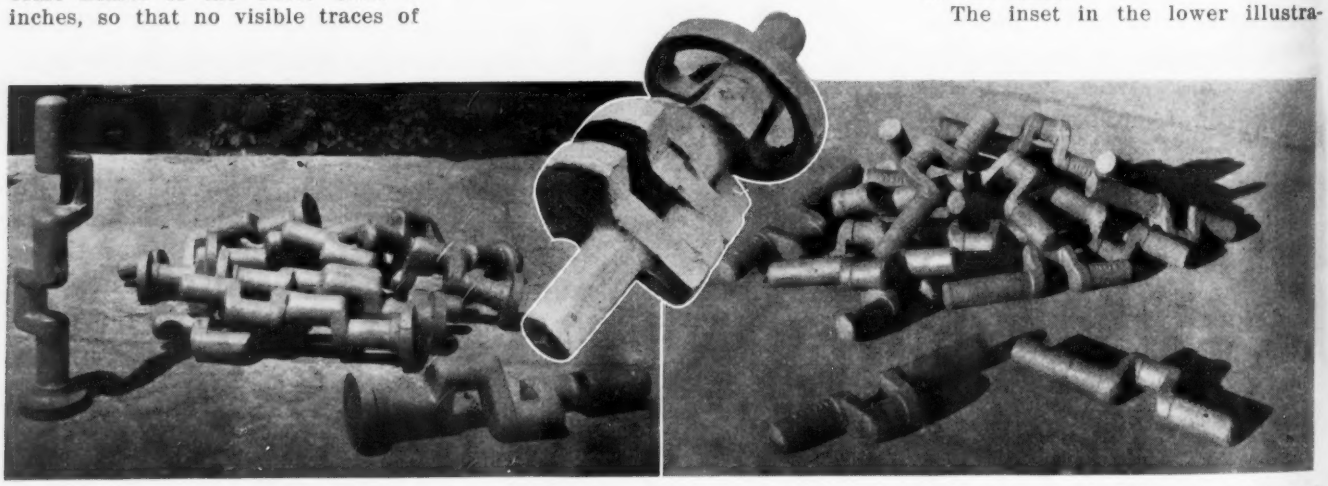
Higher Strength Possible

By the use of alloying elements, cast steels are being produced regularly with strengths well over 200,000 pounds per square inch and with considerable toughness. With a material of this quality, the steel foundry is able to meet the highest of strength requirements for crankshaft material. However, a crankshaft may be of exceptionally high strength, but if the design permits high localized stresses at certain points, the shaft may fail easily.

Most crankshafts fail as the result of a crack produced by transverse stresses which start in the re-entrant angle between the web and either the pin or journal. The oil hole which usually is drilled radially through the pin or journal is no doubt responsible for a good many failures, due to the fact that applied stresses have about twice the effect in the vicinity of a drilled hole that they have in other parts of the shaft; also, the effective cross-section at this point is reduced because of this hole.

Another probable cause of this failure is the fact that at the place where the web joins either the journal or the crank pin, the laminations of the forged shaft sometimes end in the outer part of the bend, thus breaking the continuity of the fiber structure and contributing to weakness. In a cast-steel shaft, the oil holes could be cored out and the grain structure would be uniform in the bend as it would be in other parts of the shaft.

The inset in the lower illustra-

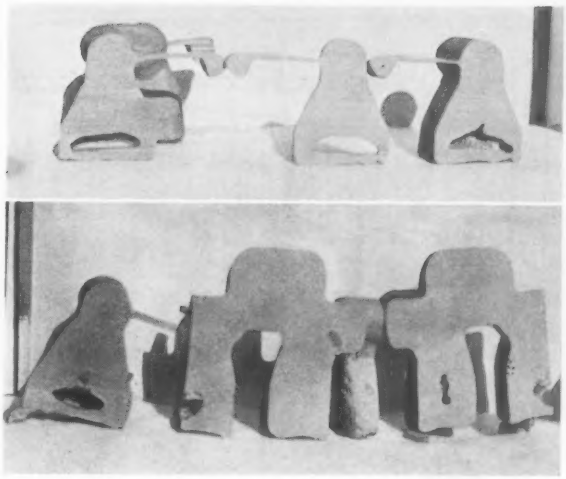


Miscellaneous types of single-throw and double-throw cast-steel crankshafts. Inset shows a counterbalanced shaft, cast integrally

tion on Page 32 shows a counter-balanced crankshaft, cast integrally, thus making it unnecessary to attach separate parts for counter-balancing.

Nickel Steel Specifications Are Published

Numbers 1 to 8 of recommended specifications for nickel alloy steel in railroad applications have been issued by the International Nickel Co., 67 Wall street, New York, The specifications cover forging billets, normalized and tempered low-carbon forgings, boiler and firebox plates, castings, nickel engine bolt steel, low-carbon main frames for locomotives, nickel staybolt steel and nickel cast iron for cylinders. Data are presented in form similar to that used by the American Railway association for standard specifications. Additions covering other nickel alloys used in railroad applications will be issued from time to time by the company.



CAST-STEEL compressor shaft sectioned transverse to the length and through the heads (above), and longitudinally bisecting the heads (below), reveals the absence of porosity or flaws in the shaft proper

New Electromagnetic Method Tests Welds Successfully

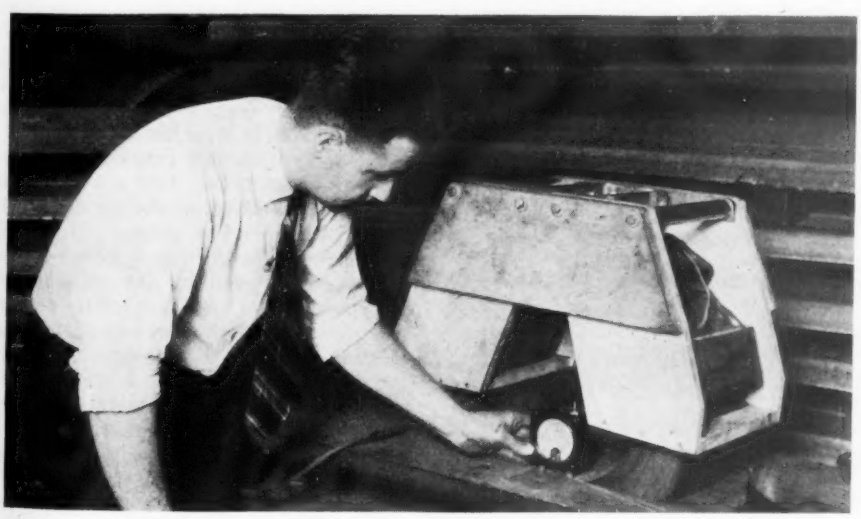
ONE of the greatest drawbacks encountered in the application of welding to commercial fabrication, the inability of the operator to determine the reliability of his weld, has been successfully attacked by the new method of testing welds developed by the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. The tests are made by "bridging" the welded seam with a large horseshoe electromagnet and "exploring" the magnetic field in the vicinity of the weld with a meter, as shown in the illustration below.

The method, which is applicable to butt welds, in which the edges of steel bars or plates are welded together without lapping, is applied successfully using only simple easily-portable apparatus and little skill and training on the part of the tester is required. This test is really a further development of the method developed by M. Roux, a French investigator to "explore" the weld by placing iron filings on a piece of paper over the weld and observing the density of the filings as they are affected by the density of metal in the weld. The method however, is good only when the surface is smooth and the faults are not too far below the surface.

By passing the meter over the weld and watching the pointer, the quality of the weld can be determined readily. The meter indicates the "reluctance" of the weld by indicating the magnetizing forces across the weld as compared with the magnetizing forces of the steel plate. If the magnetizing forces are about the same, the weld is good; if not, the weld is imperfect and the meter will disclose readily just how imperfect it is.

This method is practically indifferent to the depth of the fault below the surface and is only slightly affected by the rough uneven surface. Various new types of weld testmeters are now in the process of development.

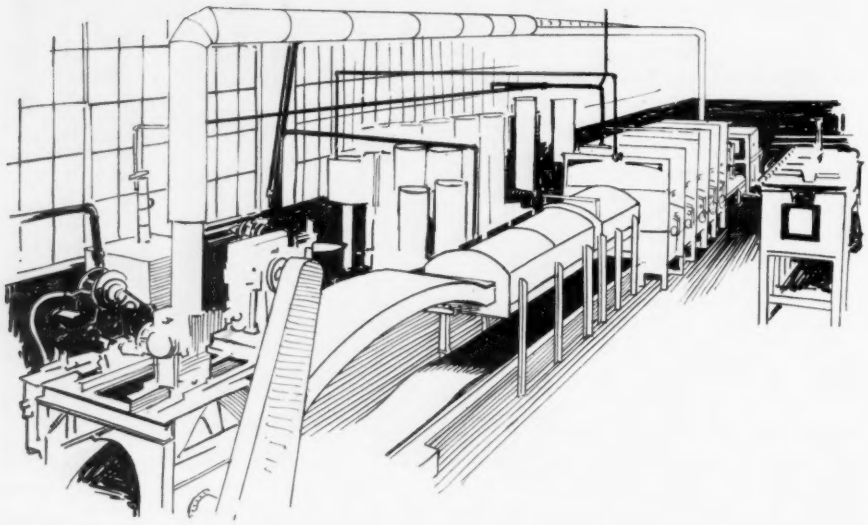
After several months investigation of both the iron-filings and weld testmeter methods by the research laboratories, the Westinghouse Electric & Mfg. Co. in the near future expects to use these methods to test large butt welds in structures such as generator frame rings, flywheel rims and welded pipe. The electromagnetic method of test welds was described by T. P. Watts, research department, Westinghouse company, at the annual meeting of the American Welding society, Chicago Sept. 22-26.



In testing butt welds, the meter placed between the arms of the horseshoe electromagnet indicates whether the weld is good or bad and also shows the degree of defectiveness

Sees Gain in Europe

Major Aaron E. Carpenter, first vice president of E. F. Houghton & Co., Philadelphia, has returned from a stay of two months in Europe. He inspected his company's new oil manufacturing plant at Trafford Park, near Manchester, Eng., the site of some 25 American manufacturing and distributing plants. His observation leads him to believe business conditions are better in France and England than in the United States. Unemployment in France is relatively small and it has been lessened in England since the beginning of the year.



Furnace Atmosphere Governs Bright Annealing Action

BY R. J. COWAN
Surface Combustion Corp.

KEEPING metal surfaces bright during annealing treatment presents a peculiar problem in the study of the effects of various furnace atmospheres on metals. The accompanying article, abstracted from a paper presented at a recent chemical and production conference of the American Gas association in Philadelphia, discloses results of research work on the effects of various atmospheres, such as hydrogen, nitrogen, carbon dioxide, hydrocarbons, etc. The author, R. J. Cowan, is metallurgist, Surface Combustion Corp., Toledo, O.

EFFECTS of gases upon metal surfaces are many and varied; in many cases the metal reacts with the gaseous atmosphere in such a way as to injure the surface of the metal so that further work is necessary to restore its commercial value. The effect of the atmosphere is usually that of oxidation, whereby the metals become tarnished and in extreme cases badly scaled as a result of this action. This makes necessary a subsequent pickling operation.

In a gas-fired furnace, particularly, a knowledge of the effect of a gaseous atmosphere upon metal surfaces is of great importance. For this reason, it is customary to refer to furnace atmospheres as being oxidizing, neutral or reducing, terms that are so common as to need no explanation. In a careful study of these atmosphere effects, these usual designations lose their importance and the matter must be studied in more minute detail.

Metals vary in the way they respond to different atmospheres. For some metals the ordinary reducing atmosphere, so-called, is satisfactory and will produce a bright annealed surface. Such metals as iron and copper fall within this classification. There are other metals that are much more difficult to anneal, for which it is necessary to use a special atmosphere to keep them bright during heat treatment. The metals most difficult to bright anneal are those that are alloyed with zinc, such as brass. Because of its high volatility and the ease with which zinc forms the oxide, it is difficult to anneal and keep bright. Although bright annealing is largely applicable to nonferrous metals, the process finds considerable application in the annealing of strip steel and because of this fact, is not confined entirely to nonferrous metals.

The usual method of approach to the problem is to use an atmosphere that is known to be inert so that it will not react chemically with the surface of the metals being treated. Such an atmosphere is nitrogen. If a metal is heated in an atmosphere of nitrogen, particularly a metal containing zinc or one whose surface will oxidize readily, it will be found that the metal will be tarnished. This matter has been investigated carefully in our laboratory. Commercial pure nitrogen was obtained and further purified. The operation of heating a strip of brass was conducted in a glass tube in a flowing atmosphere of this nitrogen. Above a temperature of 800 degrees Fahr. there was found to be an active staining of the metal. The outlet gases were passed through a bulb containing potassium hydrate (KOH) and by this means it was possible to detect rather large amounts of carbon dioxide present in these gases.

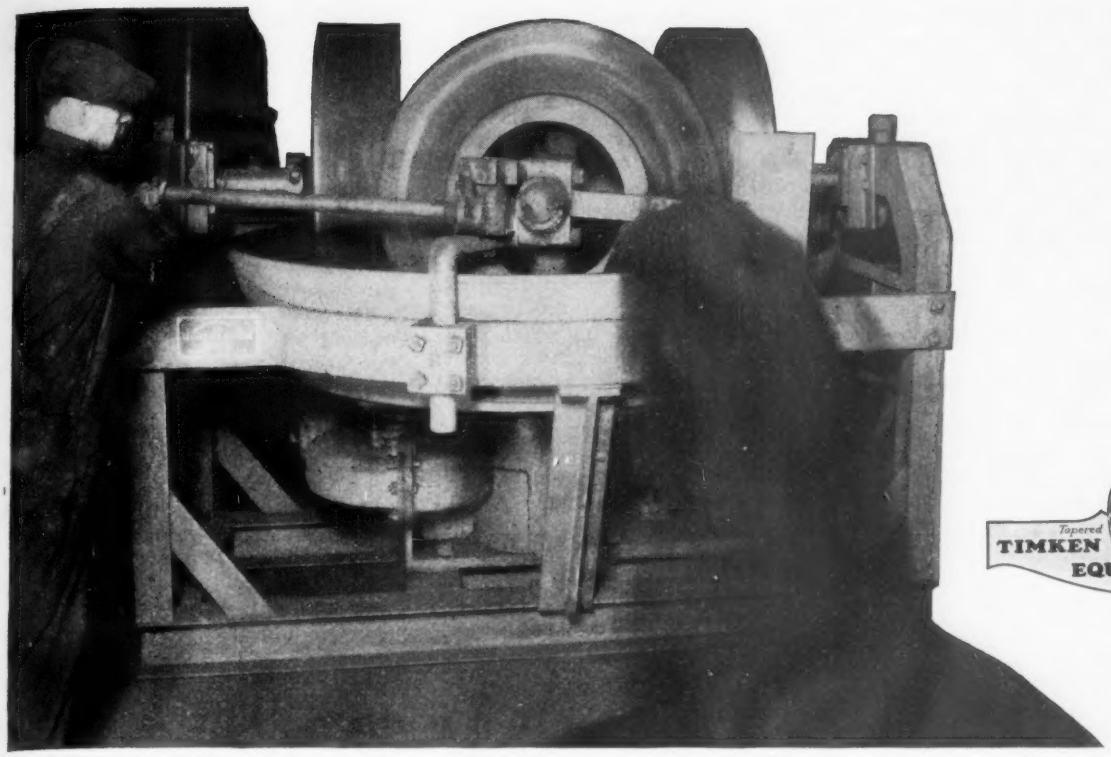
It is a well-known fact that metals have the property of occluding various amounts of different gases that are liberated when the metal is heated. These gases, as a rule, contain carbon dioxide and in the cases of metals that are easily oxidizable, this gas, in coming from the metal, will oxidize the surface to produce a tarnish.

Reversible Reaction Involved

When using an atmosphere of carbon monoxide for annealing brass, it is found that the following reversible reaction, $2\ CO = C + CO_2$, takes place toward the right at the temperatures considered with the liberation of CO_2. Carbon dioxide (CO_2) will oxidize brass strongly even in small amounts. Therefore, it is not feasible from a chemical standpoint to use an atmosphere of carbon monoxide for bright annealing purposes. In the case of an iron or steel, the presence of carbon monoxide produces strong carburization of the metal when heated to a temperature above 1500 degrees Fahr. For this reason also it cannot be used for annealing purposes with these metals.

In the course of these studies, it was found that metals and particularly brass could be kept bright by annealing in hydrocarbon gases under some definite conditions. It is a well known fact that the hydrocarbon gases break down with carbon deposition at different temperatures. This breakdown is affected by the presence of certain materials that will act as catalysts. In the presence of these catalysts the carbon deposition is active at a temperature of 1250 degrees Fahr.; without the catalyst the temperatures are much higher.

Along with the carbon deposition is a corresponding liberation of hydrogen which is known to be strongly reducing in its action on an oxidized metal surface. In order to bright anneal in any of these hydrocarbon



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gases, it was found to be necessary to break down the gas in this manner before satisfactory results could be obtained. If the operation were conducted in a silica tube or in a glass tube, it was found to be impossible to bright anneal the work at a temperature of 1250 degrees Fahr., which is the upper range of brass annealing temperatures. However, with an iron tube, the operation was successful. It was natural to suppose under these conditions that the bright annealing reaction was due to the presence of hydrogen that had been set free as the result of the hydrocarbon breakdown.

The following analysis of these hydrocarbon gases is of interest. Passing 175 cubic centimeters of propane per minute at a temperature of 1300 degrees Fahr. with no catalyst present, it was noted that an oil formed in the outlet of the tube, the gases containing 9 per cent hydrogen. When iron was present at the same temperature and with the same gas flow, there was a heavy carbon deposition and the outlet gases contained 49 per cent hydrogen.

The temperature of 1250 degrees Fahr., which seems to be the minimum annealing temperature for hydrocarbon gases, is too high for the commercial annealing of certain grades of brass. It was found, during this investigation, that it was not necessary to heat the metal to a temperature of 1250 degrees Fahr. in order to obtain bright annealing. If the furnace muffle, containing the hydrocarbon gas, were heated to this temperature, a strip of brass could be passed through without attaining the muffle temperature and still be bright. This fact was determined by measuring the grain size of the brass so treated since this varies in accordance with the temperature.

Here was a rather strange thing for if the metal were heated even in an atmosphere of pure hydrogen, there would be a certain degree of tarnishing of the metal at a temperature about 800 degrees Fahr., which is the point where gas evolution from the metal becomes noticeable. This tarnishing would persist and increase until a temperature of about 1250 degrees Fahr. However, if the furnace temperature were maintained at 1250 or above, the metal could be passed through in such a way as never to attain a temperature higher than 800 without any indication of tarnishing. The indication seems to be that when hydrogen is heated to a temperature above 1250 degrees Fahr., it becomes particularly activated so that it will reduce quickly the oxide formed on many metals at lower temperatures.

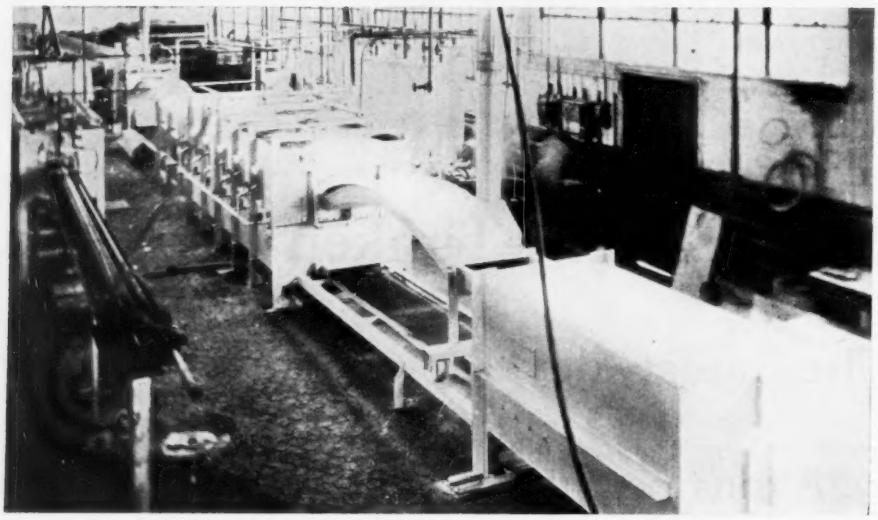
As has been indicated, it is possible by means of a hydrogen atmosphere to remove the easily formed oxide when the hydrogen is in this activated form. One serious objection, however, attaches to the uses of hydrogen alone as an atmosphere for annealing. This is the effect that hydrogen has upon volatilization of zinc. In the usual annealing operation it is found that the presence of zinc vapor becomes noticeable at temperatures around 1000 degrees Fahr. In the case of hydrogen, however, there is considerable volatilization at 800 degrees Fahr.

The question naturally arises as to whether the carbon in the broken down hydrocarbon gases has any effect on the bright annealing reaction. To determine this, tests were made with ammonia (NH_3) that had been broken down into nitrogen and hydrogen, thus eliminating the presence of free carbon in the surrounding atmosphere. The same bright annealing reactions were found to occur in the same way and at the same temperature. That is to say, a minimum of 1250 degrees Fahr. gave the bright annealing reaction on brass.

The hydrocarbon gases that have been used for this purpose and which respond in a similar manner have been methane, ethane, butane, propane, acetlene and ethylene.

The general problem of bright annealing has been approached also in our laboratory in a different way, having in mind the use of an atmosphere of flue gas such as might be obtained by controlled combustion in a gas-fired furnace. A flue gas of the so-called reducing character was used which contained about 2.5 per cent carbon monoxide, no oxygen and 8.5 per cent carbon dioxide, in addition to water vapor and some sulphur compounds. Such an atmosphere is suitable for annealing certain metals, for instance, copper and certain nickel alloys, but it is not at all suitable for annealing brass or zinc-bearing alloys.

The presence of a slight trace of water vapor is highly oxidizing to brass when heated in its presence and the same is true of carbon dioxide gas in small amounts as referred to above. It was impossible to get results by purifying this flue gas by removing the carbon dioxide and moisture for tests had shown that even with an atmosphere as inert as nitrogen, the brass would tarnish when heated. Therefore, if flue gas were to be used at all for this purpose, it would be necessary to find some means for overcoming these objections.



Special continuous belt furnace constructed for bright annealing brass stampings and shapes, seen from the charging end. An atmosphere of methanol and flue gas is used, the two arches being special types of seals to prevent admission of air to furnace. At the extreme left is a furnace for bright annealing strip steel and wire strands. In the central background is a series of towers for preparing the gas mixture

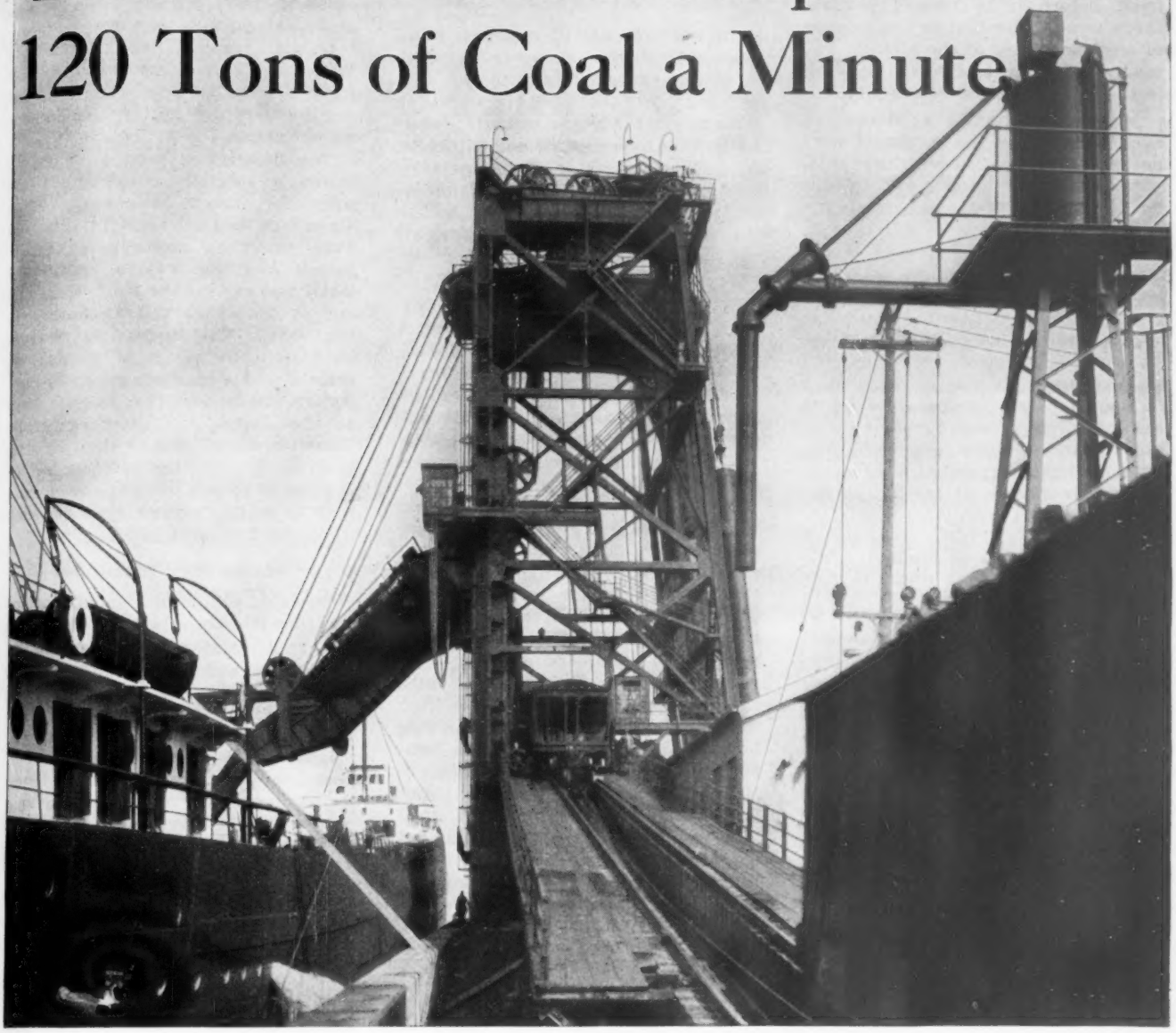
Methanol Vapors Added

By adding the vapors of methanol or methyl alcohol (CH_3OH) to such a flue gas, interesting results in the bright annealing of brass were obtained. By this means it was possible to bright anneal any of the zinc-bearing alloys at any annealing temperature desired without any difficulty from any of the constituents of the flue gas except the moisture content which had to be removed before saturating these gases with methanol. The presence of carbon dioxide in the gases was not at all objectionable. The mechanism of the reactions involved is rather complex.

When the vapors of methanol are passed through a silica tube at a temperature of about 1200 degrees Fahr., there is only a slight breakdown of the methanol into hydrogen and formaldehyde. In the presence of a catalyst, however, this reaction goes on at much lower temperatures and much more readily, the gas ultimately breaking down to hydrogen and carbon monoxide.

In the bright annealing of brass, the metal itself serves as the catalyst or perhaps it is the oxide of zinc that is formed by the liberation of oc-

This Giant Car Dumper Loads 120 Tons of Coal a Minute



If you should be near Toledo, Ohio, when the lake season is open, you would wonder what happens to the long trains of heavily loaded coal cars which draw steadily into the new Presque Isle dock of the Chesapeake and Ohio Railway. Let us stop for a moment and find out.

Towering over the boats being loaded at the water's edge stand two Industrial Brownhoist electric high-lift car dumpers, like the one shown above. Now watch one of them pick up a car holding 120 tons of coal, rotate and dump it and place it back empty on the track. Each dumper will complete a cycle a minute, the boats being quickly loaded for up the lakes.

The tremendous savings in the above operation are obvious, but proportional economies are being made by Industrial Brownhoist cranes in nearly every line of industry. You have only to call in our nearby representative to learn whether these economies can be applied to your own handling work.

Industrial Brownhoist Corporation, General Offices, Cleveland, Ohio

District Offices: New York, Philadelphia, Pittsburgh, Detroit, Chicago, New Orleans, San Francisco, Cleveland.

INDUSTRIAL BROWNHOIST

cluded gases from the metal. Under these conditions, the oxide formed is immediately reduced and reduced almost before it is formed because there is no indication in the process of any tarnishing of the metal. The reaction that takes place at this point is the bright annealing reaction.

If the operation is conducted in such a way that the methanol does not come into contact with the metal surface being annealed until after it has been broken down into hydrogen and carbon monoxide, then the bright annealing reaction will not go on. If it is conducted so as to make the metal being annealed the catalyst, then the bright annealing reaction will go on even at low temperatures. In other words, a piece of brass that has been polished may be heated to any temperature up to the maximum annealing point in an atmosphere of flue gas saturated with methanol vapors without showing any indication of tarnish at any time.

Different Gases Studied

The effect that different gases have on the catalytic breakdown of methanol has been studied by detecting the temperature at which formaldehyde (HCHO) is formed when passing different gases saturated with methanol through heated tubes containing brass. Formaldehyde may be detected by passing the outlet gases through a tube containing rosaniline solution decolorized by sulphurous acid. The appearance of a pink color in the solution indicates the presence of formaldehyde. In this way, when using an atmosphere of nitrogen as a carrier for methanol, formaldehyde is first detected at a temperature of about 1000 degrees Fahr. Using carbon dioxide as the carrier, formaldehyde is detected first at a temperature of about 1250 degrees Fahr.

In the presence of flue gas, however, formaldehyde may be detected at a temperature between 300 and 400 degrees Fahr. This seems rather strange since flue gas consists essentially of carbon dioxide and nitrogen. A synthetic flue gas made up of a mixture of nitrogen and carbon dioxide and used as a carrier for methanol strangely gave the formaldehyde reaction at about 1050 degrees Fahr.

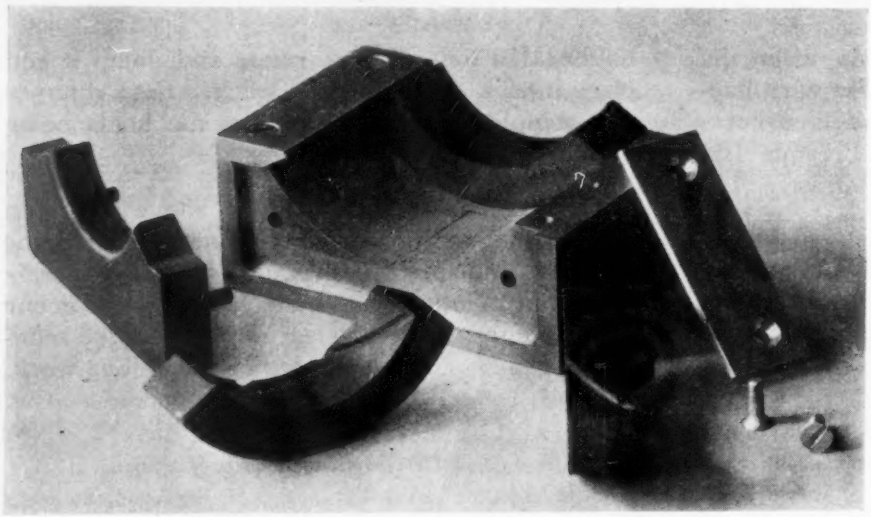
It has been shown by many investigators that the presence of a small percentage of carbon dioxide in the atmosphere will tarnish brass readily. This matter has been referred to several times in this discussion. For some reason, this reaction does not take place in the presence of methanol vapor. To determine whether or not a high concentration of carbon dioxide would inhibit the methanol reaction, we used an atmosphere of carbon dioxide as the carrier gas for methanol. By this means we found that the brass sample would tarnish badly at a temperature of about 800 degrees Fahr. which seems to be coincident with the liberation of occluded gases from the metal, and that this tarnishing increased progressively until a temperature of about 1250 degrees Fahr. was reached. At this point, the bright annealing reaction took place normally. This indicated that the bright annealing reaction was coincident with the formation of formaldehyde from the alcohol. For instance, when an atmosphere of nitrogen was used as the carrier for methanol, the metal would tarnish at 800 degrees Fahr. as usual but this tarnish would be removed quickly by the bright annealing reaction at about 1000 degrees Fahr., which again corresponds with the temperature of formaldehyde formation. When using flue gas, however, no indication of tarnish was found at any temperature during the annealing operation.

The illustration seen on Page 36 shows a specially constructed furnace for bright annealing brass stampings and shapes. In this furnace, using an atmosphere of methanol and flue gas, a continuous mesh belt carries the work from one end to the other and discharges in the open. The furnace is unusual in design in that it is possible to maintain in a muffle a specially controlled atmosphere that is open both at the charge and discharge ends. This is accomplished by the two arch seals shown. At the extreme left of the illustration is a strip steel and wire annealing strand furnace, seen from the discharge end.

Commercially Practicable

Since no minimum annealing temperature is especially adapted for the methanol reaction, it has been found possible to meet the commercial requirements of a low-temperature anneal by this means. Articles made from brass or nickel-silver may be bright annealed at any desired temperature without any danger from tarnishing. They may be held at any temperature desired without danger of spoiling the surface in any way.

On the basis of this work, it has been possible to develop two different methods for bright annealing metals. These have a wide range of applicability as to metal annealed and temperatures used. The first one described, that is, based on the breakdown of a hydrocarbon gas, seems to be particularly well adapted for the annealing of metals in strand form either as strip or as wire. The other method, using flue gas and methanol, is especially well adapted to the annealing of stampings or other bulky materials that may require a lower temperature anneal.



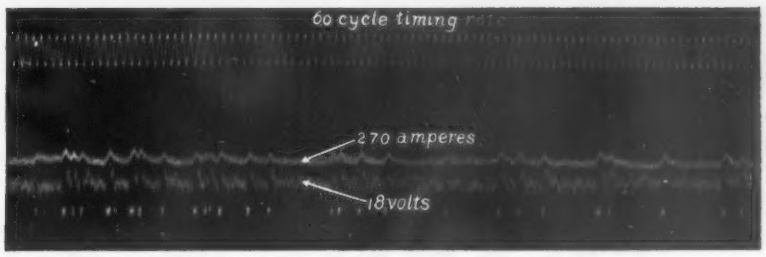
NONMETALLIC BEARING REQUIRES NO GREASE OR OIL

Water is used as a lubricant for Micarta bearing liners in rod, bar, wire and merchant mills without any change in the conventional cooling system. Impure water containing weak acids and alkalies, has no affect on the phenolic resinous material manufactured by Westinghouse. Savings in power on account of the low coefficient of friction and polishing effect of the material amount to as much as 30 per cent

Concrete Reinforcing Group Announces Fall Meeting

Concrete Reinforcing Steel institute announces that the semiannual meeting of the institute will be held at Buckwood Inn, Shawnee-on-Delaware, Pa., Sept. 28-30. This was also the scene of the October, 1928, meeting. A series of conferences is being arranged for the meeting, dealing intimately with the various problems which confront members of the institute in the current business relapse. M. A. Beeman, Tribune Tower, Chicago, is secretary.

A STABLE and FLEXIBLE ARC



Current and voltage records of a 300-ampere G-E welder operating at 270 amperes

THE NEW G-E ARC WELDER

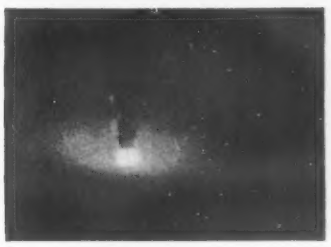
Combines and excels all the best features of all the good welders now on the market... plus new features all its own.

1. **Stable, flexible arc**
2. **Quick recovery ("pep")**
3. **Self-excitation**
4. **Spark-free commutation**
5. **Simple operation**
6. **Duplex voltage control**
7. **Dead-front control panel**
8. **Large, protected instruments**
9. **Light, compact, strong construction**
10. **Low center of gravity**
11. **A definite purpose for every ounce of material**

STABILITY

The oscillograph has written its own unbiased record of the remarkable arc stability of the new G-E arc welder. Operators will appreciate a stable arc. It gives them greater confidence, reduces fatigue, and makes welding easier.

Long arc



Short arc

FLEXIBILITY

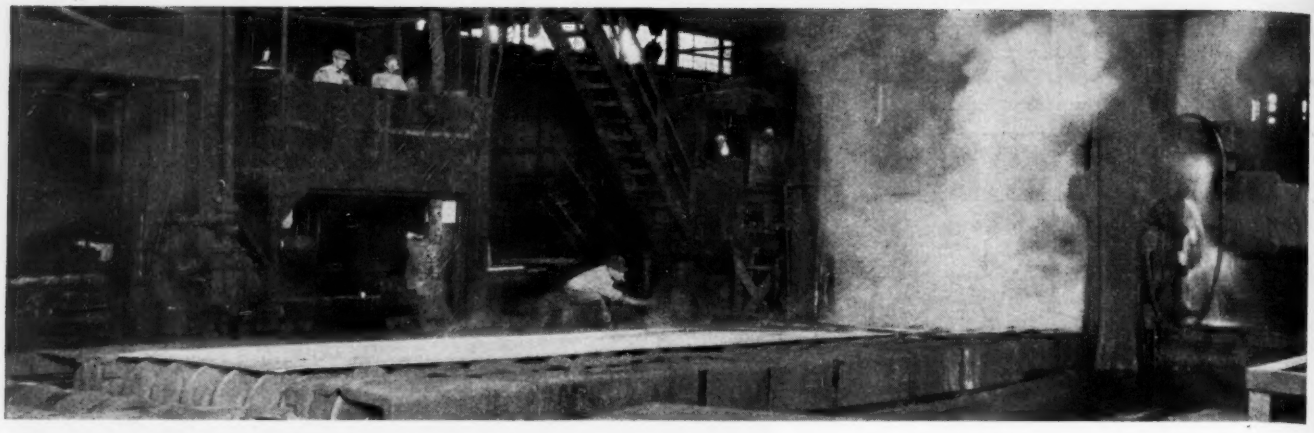
The long and short arcs shown here are taken directly from a "movie" of the new welder in action. They show clearly the unusual arc flexibility, which enables the operator to vary the length of the arc at will without the annoyance of constant interruption.

Before buying any arc-welding set, investigate this advanced machine which bears the G-E monogram. Immediate shipment can be made from any of 20 G-E warehouses throughout the country. Ask your nearest G-E office.

530-110

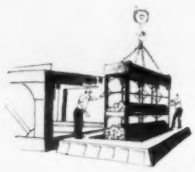
GENERAL ELECTRIC

SALES AND ENGINEERING SERVICE IN PRINCIPAL CITIES



PROGRESS IN STEELMAKING

A DECADE ago it took at least 700 to 750 pounds of coal to generate sufficient gas to produce a gross ton of ingots in the open-hearth furnace. In those days the furnaces leaked air like a sieve, and the flames could be seen through the brick walls. Today due to tightening of furnaces and the regulation of the air-to-fuel ratio, fuel consumption at progressive plants is an equivalent of approximately 375 pounds of coal per ton of ingots. But this average is in process of being further greatly reduced. Experimenting and research work is bearing fruit and in some cases open-hearth steel is being produced with a coal equivalent of less than 300 pounds.



IN THE heat treatment department of an important alloy steel bar plant has been installed a new electric heating furnace of the pit type. This is provided with a forced cooling feature. That is, the time of cooling is shortened materially by forcing cool air through alloy tubes in the roof of the furnace.

♦ ♦ ♦

A large steel company has made a saving as a result of an investigation of the general subject of lubrication. Instead of applying lubricant generally in bearings, it has developed connections for properly applying the lubricant exactly at the point where the friction occurs. One result has been a substantial reduction in the kilowatt-hour power consumption in rolling a ton of steel.

♦ ♦ ♦

A certain open-hearth furnace has been equipped with practically everything that can be applied to a unit of this nature. The purpose of the company is to study thoroughly everything that is available in connection with open-hearth furnaces and open-hearth practice, so as to determine most satisfactory methods and conditions of operating and how to get fuel costs to minimum. The study involves the use of different fuels and changes from one fuel to another in accordance with what is available.

♦ ♦ ♦

At a seamless tube plant is a new billet heating furnace operating on gas. It has two sets of burners, six pointed toward the soaking zone and six pointed back toward the charging end of the furnace.

♦ ♦ ♦

At least five companies now are actively experimenting with three-pass checkers in open-hearth furnaces.

♦ ♦ ♦

One of the interesting sheet mills in this country reflects unusual efficiency in utilizing floor space. Under the mill tables are annealing furnaces which charge on one side and discharge on the other.

♦ ♦ ♦

A check in the Pittsburgh district reveals among other things that 75 per cent of the steel plants there are using chrome brick at the bottoms of soaking pit walls, with the number of courses varying, as a rule, from 7 to 15.

♦ ♦ ♦

As a safety measure, the Midvale Co. has painted all crane hooks a bright yellow to make them more conspicuous.

♦ ♦ ♦

August weather, this year esecially, is by no means conducive to comfortable working conditions in mills where red hot steel is being handled. The intense heat is alleviated in many mills by the installation of giant fans or man-coolers as they are called. A rolling mill in the Detroit district has about 20 of these fans distributed about one mill at points where men are working.

♦ ♦ ♦

A workman with only one good eye was hired in an Ohio steelworks. The employer did not notice the defect and within a few days the new worker claimed that he had been hit by a flying piece of metal and the sight of one eye had been impaired. Only through good luck did the employer uncover proof that the man's eye was deficient before entering his employ. A steel foundry proprietor declares that the only way to guard against impositions of this kind in states where disability insurance is in force is to insist on the physical examination of employes and to keep careful records of all defects.

HERE is a co-incidence. In the July 30 issue of STEEL we presented an item in this column explaining how a certain American wire mill had disposed of mixed nails, spikes, etc., gathered from sweepings to a Japanese buyer who sent them to China where the material was sorted and resold. In the July 31 issue of the *C. F. & I Blast* is an article stating that wire mill shorts from the Pueblo mills of the Colorado Fuel & Iron Co. are shipped to China where the material is made into toy airplanes, dolls, jumping jacks and other 10-cent store novelties, which in turn are imported into the United States. Wire shorts—the unwiped ends of wire which have passed through the galvanizing vats—are bundled and stored until a carload is ready for shipment. Thus the Orient figures in another unusual case in the disposal of mill waste.

and

discuss

AUTOMATIC ARC WELDING

"Today someone went so far as to tell me that we could get stronger and more ductile welds if we used the Shielded Arc process in automatic welding."

"Then someone is right in the short distance he went. They ARE stronger because by this process you get welds having a tensile strength of 65,000 to 80,000 lbs. per square inch, and ductility equivalent to that of mild rolled steel."

"You mean to say he should have gone further?"

"Certainly, or at least far enough to tell you that with the completely shielded arc of the Electronic Tornado, you get in addition, resistance of the weld to corrosion even greater than the above-mentioned mild rolled steel."

"Well, that's going considerable distance."

"Yes, distance, but it doesn't take into consideration the unusual speed in covering distance. For instance, with the Electronic Tornado you can automatically butt weld ¼" plate at the rate of 60 feet per hour—and you can lap weld it at 65 feet per hour."

"Those are fine claims, lad, but how can we be sure that they're not simply claims?"

"That's easy—just call in a Lincoln welding engineer. He'll survey the job to be done and he'll hand you a written guarantee that the Electronic Tornado will do the job at the stated speed and cost. You see, you just can't lose when you deal with

LINCOLN

THE LINCOLN ELECTRIC COMPANY, CLEVELAND, OHIO

Largest Manufacturers of Arc Welding Equipment in the World W-184

Cold-Rolled Hardened Steel Band Is Of Record Width and Length

WHAT is claimed to be a world's record in cold rolling and hardening is believed to have been achieved when the Sandvik Steel Works, Sandviken, Sweden, produced a steel band 32 inches wide, 360 feet long and 0.0472-inch thick. This band is shown in the illustration above.

This manufacturer is a pioneer in the making of cold-rolled hardened steel bands of extra width, its first delivery being made in 1883. Within only a few years the width of these bands has increased from 18 to 24 inches and now to 32 inches. Incidentally, the company is credited with rolling what is probably the thinnest steel strip ever manufactured, a strip measuring only 0.0001182-inch in thickness.

Each new advance in the production of wide steel bands has necessitated installation of mills and furnaces of increasingly large size. The rolling and auxiliary machinery for furnishing 32-inch steel bands includes a cold-rolling mill with a weight of about 200 tons, the bearings in the largest roll alone weighing about 11 tons.

Wide steel bands, such as are made by the Sandvik works, are intended primarily for steel belt conveyors, although they have other uses such as in the construction of aircraft.

18-8 Steel U-Bolts Support Gas Siphon Under Water

Heavy U-bolts made of 18-8 chrome-nickel steel were used to fasten a 24-inch cast-iron siphon to its support under the waters of the Island End river at Everett, Mass., near Boston, in a construction job just finished for the Boston Consolidated Gas Co. The line was constructed by Hugh Nawn Inc., Boston.

It was necessary to support the pipe to guard against possible settling and the engineers decided to use two pile bents with a cap over the siphon and to use two U-bolts passed under the siphon and connected to the cap as a support. Allegheny metal, a corrosion-resisting steel manufactured by the Allegheny Steel Co., Brackenridge, Pa., and containing approximately 18 per cent chromium and 8 per cent nickel, was selected for the U-bolts, washers and nuts because the pipe was laid in salt water and is in the neighborhood of chemical plants.

The U-bolts were fabricated by the Henrici Washing Machine Co., Boston, from 1½-inch rods and 11 feet long. Installation was effected by divers working in 30 feet of water.

Lengthy Program Arranged For Metal Congress

Fifty-four technical papers appear on the tentative program which the American Society for Steel Treating has arranged for its sessions of the forthcoming National Metal Congress in Boston, Sept. 21-25. This is the largest number of papers ever presented by the society at a metal congress, according to Ray T. Bayless, secretary of the publication committee.

A wide scope of subjects is covered by the technical discussions, including a number of papers on certain aspects of steel in deep drawing and stamping operations, manufacture and application of tool steel, production of cemented tantalum carbide, various papers dealing with physical properties of certain steels, a paper on precious metal alloys, and other contributions on inspection of welds with gamma rays, alloy steels and cast iron, age-hardening phenomena, etc. A complete list of these papers and their authors will be published in the Sept. 10 issue of STEEL, which will feature the National Metal Congress.

Programs of other organizations participating in the congress, the American Institute of Mining and Metallurgical Engineers, American Society of Mechanical Engineers, and the American Welding society, also are of greater length than in previous years.

The National Metal exposition will be located this year in Commonwealth pier, conveniently near the Hotel Statler where headquarters and technical sessions of the various societies will be maintained, with the exception of the welding society which will meet at Hotel Copley Plaza. Managers of the exposition state that this year's show will occupy approximately 60,000 square feet of space, almost twice that occupied by the 1930 exposition in Chicago. Over 200 exhibitors have reserved space, it is said.

Farm Implements Are Built To Give Longer Service

To meet the demands of farmers for tools of longer service, farm implement makers have been encouraged in the production of equipment through the use of expensive alloy steels, heat treated parts and antifriction bearings. Usually, these vastly improved machines are selling for less than their predecessors and at much lower prices than the same equipment commands abroad.

The National Association of Farm Equipment Manufacturers, 608 South Dearborn street, Chicago, has accumulated considerable data showing the life of implements in this country. From the Montana Experiment station it was learned that a 14-foot drill, which has covered 3580 acres, still is in good condition, total cost for repairs last season having been $5. This drill is expected to do at least 2000 acres or more of work. A 10-foot double-disk harrow has covered 2900 acres and following repairs it was expected that it would be used over an additional 700 acres.

Plows which had covered 4000 acres, free from rocks, were reported in good condition. A tractor that had been overhauled from time to time had run up to about 13,000 hours. Tractors in private hands which had worked hard from 6 to 10 years still are giving good service.

Scanning the Technology of Steel

A Digest of Important Developments in Scientific Research, Engineering Progress and Operating Procedure Pertaining to the Production, Processing, Application and Performance of Steel

Low-Carbon Steel

Review of the properties and structures that have been found by studying low-carbon steel as used in the cap screw industry, by H. B. Pulsifer technical publication No. 426 of the American Institute of Mining and Metallurgical Engineers, 31 pp., 4 tables, 30 illusts.

Considering a steel with approximately 0.10 per cent carbon, the upper critical temperature is about 1635 degrees Fahr; the lower boundary of the critical range being about 1270 degrees Fahr. At the intermediate temperature of 1440 degrees Fahr. the separated ferrite amounts to some 30 per cent of the mass, and the carbide-bearing matrix about 70 per cent. The essential part of this paper deals with the variety of structures that may be obtained on quenching from above and within this critical range.

The author concludes that as far as present studies warrant conclusions, a cold-formed cap screw has the best combination of properties and a single quenched case-hardened part will have the toughest core. A group of excellent photomicrograph reproductions illustrates the structures obtained under various quenching conditions.

—STEEL, 8-13-31

Refining in Open Hearth

Refining procedure in the basic open-hearth furnace, by C. H. Herty Jr., a paper to be presented at the 1931 National Metal Congress; Metal Progress, p. 58, 6 pp., 2 tables, 4 illusts.

In addition to the elimination of carbon, manganese, phosphorus, sulphur and silicon in varying degrees, the open-hearth process is supposed to refine the pig iron or other iron charged; and in this term "refine" most of the mysteries of steelmaking are enfolded. The refining may consist of the removal of dissolved and suspended oxidic material, of the removal of gases, or of some other materials which cause steel to be of poor quality.

Description of open-hearth construction and operation is presented, as well as details of melting procedure, a discussion of chemical reactions in melting, compositions of slags, etc.

The choice of deoxidizers and the manner of deoxidation are extremely important in making the best steel from a given open-hearth heat. In some cases the steel is deoxidized in the mold, but this generally is poor practice. Brief discussion is presented of methods of making killed steel, semikilled steel and rimmed steel.

—STEEL, 8-13-31

Alloy Steel Castings

Physical properties of various alloy steel castings, with special emphasis upon those containing vanadium, Vancoram Review, July, 1931, p. 83, 4 pp., 2 illusts.

In the thickly populated field of alloy steel castings, vanadium steel castings have been recognized favorably among designers, manufacturers and users for nearly 25 years. High elastic properties, resistance to wear and ability to render long continued service when exposed to suddenly applied loads, combined with a ready response to simple heat treatment in a manner not so uniformly encountered in carbon and other alloy steels, have been responsible for this widespread recognition. Most of these castings have been made of carbon-vanadium and chrome-vanadium steel in several carbon contents.

Significant advantages that predict important future applications are to be found in constructional cast steels of higher vanadium content such as in the chrome-vanadium, chrome-tungsten-vanadium and chrome-molybdenum-vanadium types, especially in respect to the combination of mechanical properties at normal and slightly elevated temperatures.

—STEEL, 8-13-31

Crucible Manufacture

Manufacture of graphite, fireclay and special refractory crucibles for use in metal melting work, Metal Industry, London, July 10, 1931, p. 27, 4 pp., 6 illusts.

The Morgan Crucible Co. Ltd., Battersea, London, is one of the oldest and best known crucible manufacturing plants in the world. A wide range of sizes and types of crucibles for use in laboratory and production melting work is produced here. Small crucibles are made by mass production methods; however, the larger type, such as graphite crucibles for holding 600 pounds of molten metal are made individually.

In the manufacture of the latter type, the properly matured and plastic graphite mixture is rammed by hand around the inner lower half of the crucible mold which stands on a revolving table. When the necessary amount of material has been rammed carefully to the requisite height and thickness the table is rotated rapidly and a former brought over the mold and lowered and adjusted until it just makes contact with the mixture. The latter splays out evenly along the sides of the mold against which the former presses the material gently, while at the same time the material rises up the sides of the mold. The amount of material originally "pugged" around the lower half of the mold is calculated accurately to spread as the table rotates until it reaches the top of the mold.

The former is then raised and slewed out of the way, the pouring lip formed, the mold unbolted and removed, and the formed crucible started through a carefully graduated series of drying operations which terminates in firing in a muffle kiln.

—STEEL, 8-13-31

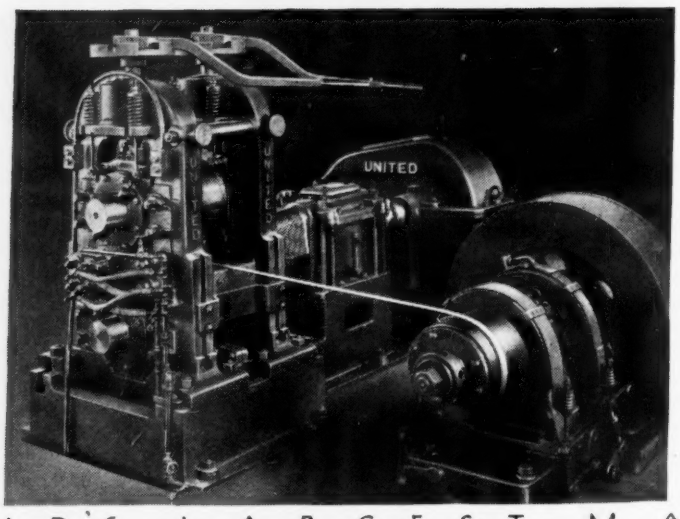
Small Plant Economies

Economical operation and management of the small manufacturing plant, by R. H. Ure, in American Machinist, first of two installments, July 30, 1931, p. 193, 3 pp., 1 illust.

It is often said that it is much more difficult to control a small plant than a large one and there is much truth in this statement. In a large plant the manager, sitting in his office, has merely to ask in order to obtain any fact on any question. In a small plant if for instance, he wants the time on any particular operation he probably will have to go out in the shop and ascertain the information himself. The manager of a small plant must be a practical man who knows the shop inside and out and knows men.

Drafting room operation, tool stores, grinding and sharpening work, and efficient use of press tools are discussed in the order named, the author pointing out many inefficiencies which creep into these departments in the small organization. Special emphasis is placed upon the maintenance of a file for drawings, rigid check-up on tools issued to machinists, and proper hardening of tools.

—STEEL, 8-13-31



THE WORLD'S LARGEST MAKER OF

Machine Tools and Plant Equipment

«Without machine tools modern machinery could not be built.»
—Joseph W. Roe

Burring Machine Replaces Hand Filing Method

City Machine & Tool Works, East Third at June street, Dayton, O., has developed a new type of burring machine which is applicable to the handling of a wide range of work on a production basis. In the accompanying illustration the machine is shown set up to remove the burr and to chamfer the heads of automotive steering gear sectors, one of which appears as an inset in the illustration. The resulting chamfered edge of the L-shaped head of this part is clearly apparent in the inset.

Rotation of the work-holding turret, which can be seen in the recess in the frame, is continuous, although its speed is variable. Once set up, operation simply is a matter of loading and unloading the parts in the quick acting fixtures which are mounted on the turret.

Burring and chamfering of parts such as the one illustrated, which in many cases has been previously a tedious and expensive hand filing operation, can be carried out on this machine with uniformity, at speeds of about 460 pieces per hour, according to the builder.

◆

Improved Swaging Machine Handles Large Work

Langelier Mfg. Co., Providence, R. I., has brought out an improved swaging machine for either hot or cold work. This machine, shown in the accompanying illustration, occupies 6 x 16 feet of floor space, weighs approximately 40,000 pounds, and is capable of tapering and reducing work to a finished diameter of 9 inches.

A 50-horsepower motor is required, this being mounted on a sliding base and separate foundation. It drives through seven 1¼ x ⅞-inch V-belts. The spindle revolves at 150 revolutions per minute in bronze bushed head and back bearings, between which is the combination sheave and flywheel.

Fourteen fixed head rolls set in a ring of high-carbon steel deliver 2100 blows per minute. Die opening is controlled by stop rods engaging the full length of the hammerblocks. Sides and rear of the spindle slot are lined with hardened steel plates and hammerblocks, dies, hammerblock rolls and head rolls all are made of hardened alloy steel, accurately ground.

Burring and chamfering machine built by City Machine & Tool Works

The separate holder is attached to the base and also bolted to the foundation, thereby insuring correct alignment. Gripping jaws are operated automatically as the saddle actuates a valve connected with an air cylinder. At the outward end of the stroke the jaws open for loading or unloading. They close at all other positions. A work stop, adjustable for any length of tube, effectively resists the thrust developed by the feeding operation.

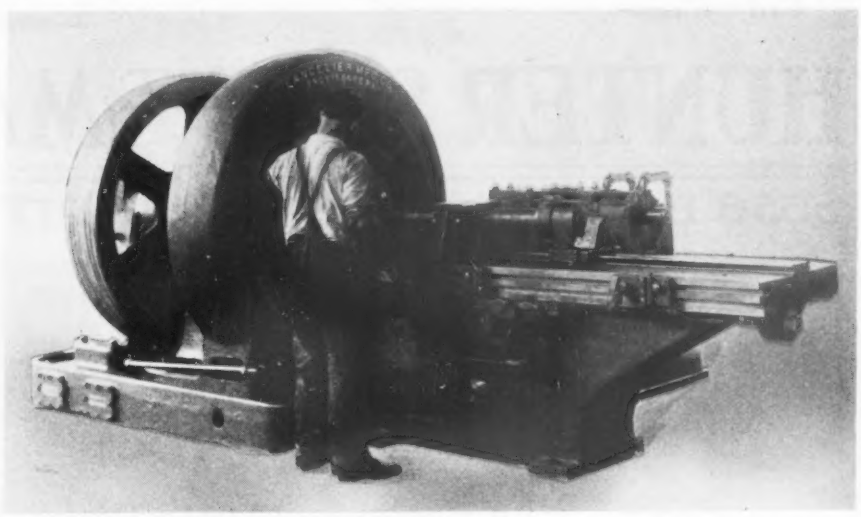
The saddle is actuated by a hydraulic cylinder having 42-inch stroke. This is the longest swaged length possible in one operation on this machine. Positive stops are provided for use in swaging long tapers requiring two or more operations. Overall length of the longest tube which can be handled in the machine is 96 inches.

Dogs on the front of the saddle automatically induce correct cycle of rapid traverse, of feed and reverse. Also, positive hand control is assured by a convenient lever. A 5-horsepower Oilgear unit mounted on a separate base and foundation directly behind the holder delivers maximum volume of 3060 cubic inches of oil per minute at 1000 pounds per square inch pressure, assuring range of feed from 0 to 240 inches per minute.

◆

Miller Equipment Includes Arbors and Adapters

Brown & Sharpe Mfg. Co., Providence, R. I., recently has put on the market a line of new cutter adapters, spiral two-lipped end mills, arbors for shell end mills, and screw arbors for use with these new adapters. A collection of these new milling ma-



Swaging machine of unusual size and capacity, with pneumatic gripping jaws and hydraulically-operated saddle, designed and built by Langelier Mfg. Co.

HUNTER

. . . spells Profit on High Speed Cutting-off Work

The No. 1-A High Speed Metal Cut-off Saw

BECAUSE of its mechanical simplicity and sturdy construction the operator can speed up production on the Hunter No. 1A without damage to the machine.

The Motor and saw blade are mounted on opposite ends of a tilted frame and balanced by adjustable spring tension. Saw arbor is mounted on a double row of deep grooved ball bearings assuring freedom from friction and high speed. Bearings are protected in oil tight, dust proof housings insuring longer life.

This saw is adaptable to a wide variety of work such as light section beams, channels, angles, brass, copper, structural and welded pipe, fire escape material, metal moulding, metal furniture parts, light section pressed and drawn steel shapes.

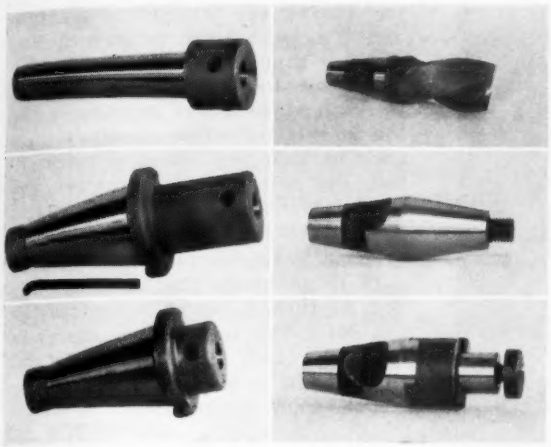
It will pay you to become thoroughly acquainted with the cost saving advantages of Hunter equipment.

We also manufacture

Inserted Tooth Saws, Circular Milling Saws, Pneumatic Hammer Rivet Sets, Chisel Blanks and Hardened Steel Specialties.

HUNTER SAW AND MACHINE CO.

5656 BUTLER STREET, PITTSBURGH, PENNA.



NEW line of cutter adapters, arbors for shell end mills, screw arbors, and spiral two-lipped end mills, developed by Brown & Sharpe Mfg. Co. for modern production milling applications

chine accessories is shown in the accompanying illustration.

The adapters are furnished in two styles, one for use on milling machines having the standardized spindle end, the other for use on millers having the taper, or threaded nose type of spindle. The adapters are furnished with a milling machine type of standard taper hole into which the shank of the end mill or taper arbor fits.

End mills or taper arbors are seated securely by a cam which insures positive drive. The surface of this cam engages the flat surface of the groove in the shank of the cutter, as the illustration indicates. When the cam is turned for releasing, the cutter or arbor drops out of the adapter, the steep taper preventing sticking, thereby insuring this quick releasing action.

These new adapters, arbors and end mills are available in many sizes.

◆

Rapid Cutting-off Machine Uses Abrasive Disk

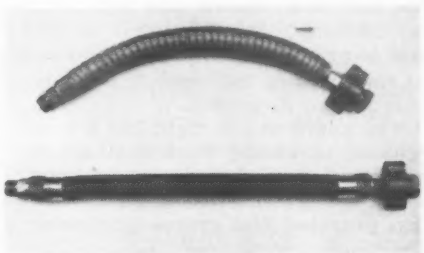
Andrew C. Campbell Inc., Waterbury, Conn., announces an improved machine utilizing an abrasive disk for the rapid and accurate cutting of steel, iron, nonferrous materials, fiber, etc., in both production and nonproduction work. This new cutoff machine is shown in the illustration which appears at the right.

The device operates on a novel principle wherein the abrasive disk is moved through the material by a travel arm arranged in such a manner that the spindle travels parallel to the top of the table without the use of slides. The motor is connected to the wheel spindle by V-belting and is stopped and started by a push button on the front of the machine bed. A straightedge is provided for locating the work so that the proper angle can be had readily. The work is held in place on the table by clamps, while welded steel guards are provided for the protection of the operator. The machine is counterbalanced so that the feed of the disk is always under control.

◆

Reinforced Rubber Hose for Hydraulic Assemblies

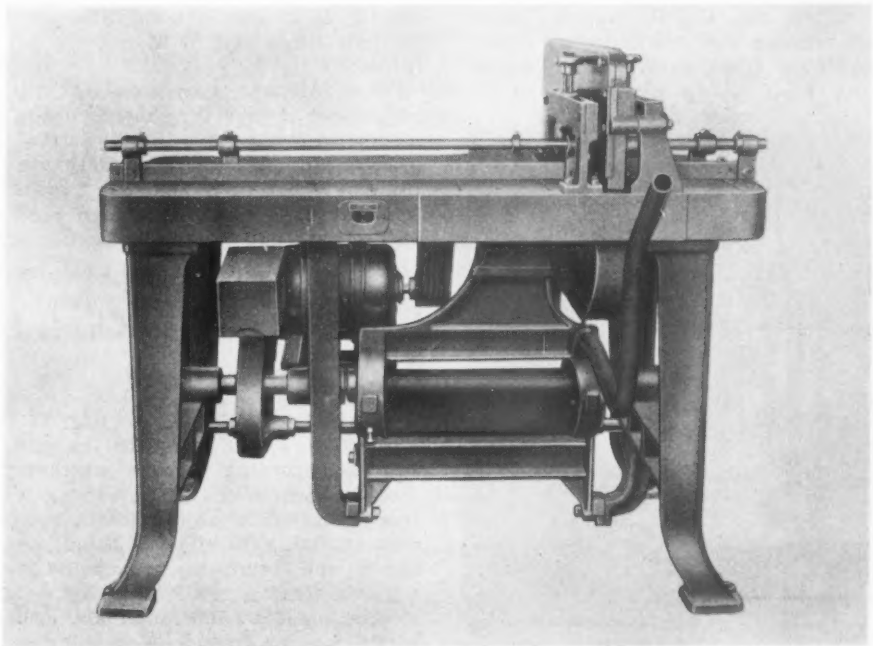
J. N. Fauver Co., 31 Brady street, Detroit, announces a new line of pressure-proof and oil-resistant rubber hose for use in hydraulic assemblies, lubricating systems and cooling systems. The pressure-proof hose, shown in the accompanying illustration, has a closely woven metal interlining and an oil and grease resisting inner core, for the handling of oil, grease, cutting oils, and air under pressures up to 6000 pounds per square inch and more. The metal interlining, in three-ply construction, and the inner core or tube of rubber specially prepared to resist the deteriorating action of oils and grease, are said to insure long service and satisfactory performance. The pressure-proof hydraulic assemblies can be supplied in any length up to 50 feet and either with or without protective armor, as shown in the illustration.



Pressure-proof and oil-resistant hose announced by J. N. Fauver Co.

Three sizes are available, with inside diameters ¼-inch, ⅜-inch and ½-inch.

The oil-resistant hose has a tough outer covering specially treated to resist wear and abrasion. This cover is reinforced by a three-ply fabric construction of extra heavy weight, which will withstand internal pressures normally used in the handling of cutting oils, coolants and in low-pressure lubricating lines. The oil-resistant hose



Abrasive disk type cutoff machine developed by Andrew C. Campbell Inc. for rapid cutting-off operations on steel, nonferrous metals, fiber, etc.

can be supplied in any length and in the following inside diameters: ¼, ⅜, ½ and ¾-inch.

◆

Tool Grinder Is Equipped With Welded Steel Base

Forbes & Myers, Worcester, Mass. announce an improved type of tool grinder. It is electrically driven and the pedestal is of welded steel construction. The motor operates at 1800 revolutions per minute while the grinding wheels are 10 inches in diameter, 1-inch face. A tool rest is provided on the left hand end of the machine only and it is adjustable in two directions.

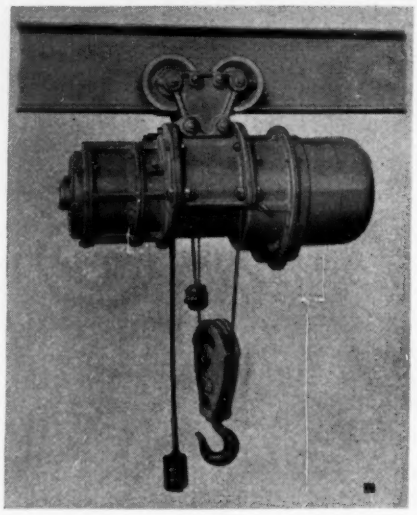
The guard at the right has a large opening to handle work that cannot be ground over the regular tool rest. The wheel spindle runs in ball bearings provided with grease lubrication. The motor is inclosed, being cooled by air drawn through the stand.

The motor is of the induction type ¾-horsepower, 110, 220, 440, or 550 volts, 1, 2, or 3 phase, 25 or 60 cycle. Motors for other current can be substituted. The starting switch is mounted in the base and knockouts are provided at convenient points so that wires can be run from any direction to the switch. Standard finishes are black or machine-tool gray.

◆

Improved Trolley Wheel Is Feature of New Hoists

Wright Mfg. Co., Bridgeport, Conn., announces a new line of trolley hoists including plain, geared and motor driven trolley types. The accompanying illustration shows one of plain type.



One of the improved trolley hoists announced by Wright Mfg. Co.

A feature is that the bearings of the trolley wheels are designed to absorb both radial and thrust loads, thus reducing to a minimum the effort required to move the hoists along an I-beam.

In the case of motor-driven trolleys the wheels are driven on each side of the I-beam, which gives smooth travel. Travel is limited by safety stops. Controllers giving single speed, two-speed or variable speed operation can be furnished.

Any of these new hoists can be mounted either parallel to, or at right angles to, their runway beams. Standard lift is 18 feet, but machines giving lifts either of 9 or 36 feet can be furnished.

Other features mentioned by the maker are: Drums of generous size to insure maximum cable life, preformed cable giving easy winding, safety-type limit switches, positive braking, weather-proof motors and choice of push buttton or pendant rope control.

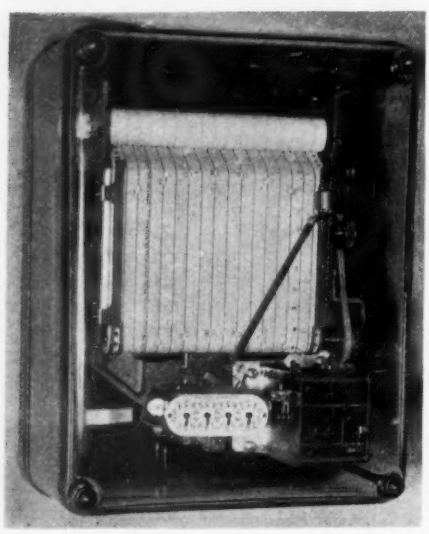
◆

Integrated Demand Charted By Watthour Meter

Westinghouse Electric & Mfg. Co., Newark, N. J., has placed on the market the recording demand watthour meter shown in the accompanying illustration. This indicates on a four-counter dial, total kilowatt hours consumed, and records on a chart the integrated demand in kilowatts over successive, predetermined intervals, ordinarily ranging from 5 to 60 minutes.

The instrument embodies a watthour meter register containing gears for driving the integrating counters and to advance a pen across a chart a distance proportional to the kilowatt hours consumed during the allotted interval. At the end of its traverse, the pen is released automatically, swings back to zero position, and resets itself. Just before releasing the pen, the paper advances a fraction of an inch, thus marking the maximum point.

A small synchronous motor serves both to determine the time intervals and to furnish power for advancing the chart. This motor stores energy in a spring, which is released at the end of the time interval, thereby advancing the chart and resetting the pen.



Recording demand watthour meter developed by Westinghouse

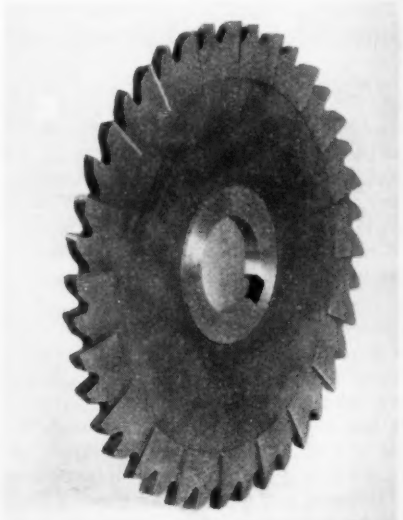
◆

New Slitting Saws Provide Ample Chip Spaces

Brown & Sharpe Mfg. Co., Providence, R. I., announces the addition to its line of cutters 21 sizes of metal slitting saws featuring side chip clearance. One of these is shown in the accompanying illustration.

These new saws, all of which are of high speed steel, have been developed to increase production and at the same time to eliminate undue cutter breakage. Unusually large chip space is provided, the sides of the saws being recessed in addition to pockets at the sides of the teeth. Also there is concavity on lateral cutting edges.

This unusual amount of clearance is said to reduce rubbing and dragging, with attendant possibilities of heating and jamming, by causing chips to be carried freely out of the work. Therefore, deep slots can be sunk at one cut which with ordinary saws would be impractical.



Improved Brown & Sharpe saw capable of deep slitting

Shape, Pipe, Car Demands Heavier

Operating Rate Advances 2 Points to 32 Per Cent—Structural Market Most Active in Several Months—Pipe Line Awards Close to 50,000 Tons

STEEL presents a moderately encouraging market this week, with structural material the most active in several months and more interest manifest in pipe and railroad equipment. Coincident, steelmaking operations have expanded 2 points this week to about 32 per cent, again directing attention to the fact that in the 1921 depression August was the pivotal month.

Fresh structural inquiry this week exceeds 43,000 tons, chief of which is 8000 tons for a navy hangar at Sunnyvale, Calif. Fully 125,000 tons additional may be considered active as previously-mentioned projects approach the closing stage. These include 58,700 tons for a bridge at New Orleans, 45,000 tons for a post-office in Chicago, 22,000 tons for a terminal at New York, and 16,000 tons for a parcel post building at New York.

Fabricators in the New York district appraise the building outlook there as the best in eight months and anticipate that projects requiring 85,000 tons will be up for bids in the next five weeks. This week's structural awards in the aggregate—25,304 tons—are more than double the 11,327 tons last week.

Line pipe demand, slumbering for weeks, has revived briskly, close to 50,000 tons being placed this week. For a 208-mile, 12-inch line for the Texas Co., the Republic Steel Corp., booked 15,470 tons, and the National Tube Co., and Youngstown Sheet & Tube Co., 10,452 tons. The A. O. Smith Corp. also took 15,000 to 20,000 tons for an unidentified company. Of the major steel consuming lines, automotive is the only one failing to show improved requirements; this industry is expected to place larger orders the latter part of August.

The first sizable car award in more than a month is that of 500 underframes and superstructures, requiring 3750 tons of finished steel, placed by the Northern Pacific with the Pressed Steel Car Co. The New York Central is expected to buy 500 freight cars shortly. A large program for the purchase of freight cars and locomotives is being shaped up by the Pennsylvania. Releases by the railroads for routine supplies and maintenance requirements are slightly heavier.

Although the small steel producing districts have curtailed operations this week—Cleveland mills declining from 29 to 21 per cent, Buffalo from 40 to 32 per cent, and Birmingham remaining stationary at 40 per cent—this easiness has been more than neutralized by improvements in the larger districts. Youngstown mill operations have snapped back from 33 to 42 per cent, while Pittsburgh is up 3 points to 33 per cent. Chicago is fractionally easier, with operations just under 30 per cent, and eastern Pennsylvania is unchanged at 32 per cent. This gives the industry as a whole an average of about 32 per cent.

In July, when the daily average output of steel ingots was 72,160 gross tons, the operating rate was 33.9 per cent. In the first seven months of 1931 steelmaking operations averaged 44.5 per cent. July's daily ingot output, while the smallest since December, 1921, was double that of July, 1921, lowest of the post-war depression.

Finished steel prices continue steady. In Detroit there is a tendency to name flat delivered prices on sheets. Strip producers are endeavoring to cut off shipments of low-priced material Aug. 15. A small importation of foreign wire products at Chicago has not affected the market there. Due to light demand for the raw materials, including pig iron, coke and scrap, the price situation is colorless.

STEEL'S composite prices remain unchanged, at $31.06, for iron and steel; $48.72 for finished steel, and $8.87 for steelworks scrap.

Composite Market Averages

	This Week (Aug. 12)	Last Week (Aug. 5)	One Month Ago (July, 1931)	Three Months Ago (May, 1931)	One Year Ago (Aug., 1930)	Ten Years Ago (Aug., 1921)
Iron and steel Composite	$31.06	$31.06	$31.05	$31.37	$32.99	$35.99
Finished Steel Composite	48.72	48.72	48.68	49.02	51.72	57.09
Steelworks Scrap Composite	8.87	8.87	8.70	9.31	12.62	10.25

Iron and Steel Composite:—Pig iron, billets, slabs, sheet bars, wire rods, pipe, tin plate, nails, sheets, plates, shapes, bars. **Finished Steel Composite:**—Plates, shapes, bars, sheets, hot strip, nails, wire, tin plate, pipe. **Steelworks Scrap Composite:**—Melting steel, compressed sheets.

Comparative Prices of Iron, Steel and Coke

Representative Market Figures for This Week, Last Month, Three Months and One Year Ago

	August 12, 1931	July, 1931	May, 1931	Aug. 1930
PIG IRON				
Bessemer, del. Pittsburgh	$18.26	18.26	18.26	20.26
Basic, valley	17.00	17.00	17.00	18.00
Basic, eastern del. eastern Pa.	16.75	16.75	17.00	18.00
No. 2 foundry, del. Pittsburgh	18.26	18.26	18.26	19.26
No. 2 foundry, Chicago	17.50	17.50	17.50	17.50
*Southern No. 2, Birmingham	12.00	12.00	12.00	14.00
**No. 2X, Virginia furnace	18.25	18.25	18.25	18.25
**No. 2X, Eastern del., Phila.	17.76	17.76	17.76	19.76
Malleable, valley	17.00	17.00	17.00	18.50
Malleable, Chicago	17.50	17.50	17.50	17.50
Lake Superior, charcoal, del. Chi.	27.04	27.04	27.04	27.04
Gray forge, del. Pittsburgh	17.63	17.63	17.63	18.63
Ferromanganese, del. Pittsburgh	89.79	89.79	89.79	103.79

*1.75 to 2.25 silicon. For local delivery. Northern shipments based on $11, Birmingham. **2.25 to 2.75 silicon.

COKE				
Connellsville furnace, ovens	2.40	2.40	2.45	2.50
Connellsville foundry, ovens	3.25	3.25	3.25	3.50
SEMIFINISHED MATERIAL				
Sheet bars, open-hearth, Youngs.	29.00	29.00	29.75	31.00
Sheet bars, open-hearth, Pitts.	29.00	29.00	29.75	31.00
Billets, open-hearth, Pittsburgh	29.00	29.00	30.00	31.00
Wire rods, Pittsburgh	35.00	35.00	35.00	36.00

	August 12, 1931	July, 1931	May, 1931	Aug. 1930
FINISHED MATERIAL				
Steel bars, Pittsburgh	1.60	1.60	1.65	1.65
Steel bars, Chicago	1.70	1.70	1.75	1.75
Steel bars, Philadelphia	1.89	1.89	1.94	1.94
Iron bars, Chicago	1.70	1.70	1.80	1.80
Shapes, Pittsburgh	1.60	1.60	1.65	1.65
Shapes, Philadelphia	1.76	1.76	1.76	1.66
Shapes, Chicago	1.70	1.70	1.75	1.75
Tank plates, Pittsburgh	1.60	1.60	1.65	1.65
Tank plates, Philadelphia	1.80½	1.80½	1.85½	1.80½
Tank plates, Chicago	1.70	1.70	1.75	1.75
Sheets, No. 10 blue anneal., Pitts.	1.85	1.85	1.85	1.95
†Sheets, No. 24, hot, ann., Pitts.	2.40	2.40	2.15	2.50
Sheets, No. 24, galvan., Pitts.	2.90	2.90	2.80	3.10
Sheets, No. 10 blue anneal., Chi.	2.00	2.00	2.00	2.15
†Sheets, No. 24, hot, ann., Chi.	2.55	2.55	2.40	2.60
Sheets, No. 24 galvan., Chi.	3.05	3.00	2.95	3.20
Plain wire, Pittsburgh	2.20	2.20	2.20	2.30
Wire nails, Pittsburgh	1.90	1.85	1.90	2.05
Tin plate, per base box, Pitts.	5.00	5.00	5.00	5.25

†Comparisons are with old classification No. 24 black sheets.

SCRAP				
Heavy melting steel, Pitts.	10.75	10.50	11.25	15.20
Heavy melting steel, eastern Pa.	8.75	8.25	9.50	12.65
Heavy melting steel, Chicago	8.50	8.50	8.65	12.00
No. 1 wrought, eastern Pa.	9.75	10.00	11.00	14.25
No. 1 wrought, Chicago	8.25	8.25	8.40	11.25
Rails for rolling, Chicago	10.50	10.50	11.15	14.50

Sheets

New Prices Holding on Light Volume—Prospects for Automotive Orders This Month Improve

SHEET PRICES, PAGE 59

Pittsburgh—Sheet business lacks improvemen, recent specifications continuing at the quiet rate of the preceding several weeks. Automotive orders are light but there are some prospects for improved specifications, particularly from Ford, before the end of the month. Stove companies are slightly better buyers but demand from electric refrigerator builders, which so far this year has been good, is declining. Radio manufacturers are buying little. Price stability is more outstanding than is business, consumers generally offering little pressure against current quotations and the market is well held on what new business is appearing. Producers quote 2.40c, Pittsburgh, for hot rolled annealed sheets, 2.90c for galvanized, 1.85c for blue annealed and 3.10c for autobody. Specifications against second quarter contracts in some cases were sufficiently liberal to accommodate consumers' requirements during part of this month, but some buyers placed little faith in the ability of mills to obtain their proposed price advance and have been forced to enter the market for additional tonnage. Sheet mill operations remain slightly above 35 per cent.

New York—Firmness continues to characterize the sheet market. No concessions are reported in any quarter. While business has been light sellers feel highly encouraged over the absence of efforts to stimulate sales by offering low prices.

Philadelphia—Sheet demand remains sluggish, with little change expected over the next four weeks. Prices are firm.

Cleveland — Shipments have tapered and are at a slower rate than last month. Barrel, stove and electrical equipment manufacturers are taking small lots, but little is developing from the automotive industry. Consumers generally have sufficient material on hand that was purchased at the lower price range, and the new prices, though holding firmly on miscellaneous orders, are undergoing little test.

Chicago—Mills receive small lot orders in a sustained volume, nearly all of which carry rush delivery specifications. Jobbing outlets on galvanized and blue annealed sheets are making steady commitments. General manufacturing trade, while spotty, is the only one of the major outlets presenting signs of activity. Prices under the new sheet classification are nominally unchanged, accompanied by light sales volumes.

Buffalo—Sellers report the new sheet prices are maintained firmly. Buying has been reduced to known needs, and the volume of business during the past week was below that of the week preceding.

Cincinnati—Sheet mills here continue to report steady prices. A fair general demand, excluding automotive specifications which have diminished, makes possible operating schedules not far below 40 per cent.

St. Louis—Demand for sheets has receded slightly since the first of the month. Buying usually is in small lots. Sales of blue annealed are larger than those of other grades. Prices are steady.

Birmingham, Ala. — New sheet business is sufficient to sustain mill operations at 50 per cent. Orders are in hand for delivery through the third quarter, and in some instance in the fourth quarter.

Two students of the Wharton school of business, University of Pennsylvania, Philadelphia, are studying the scrap industry in conjunction with the Institute of Scrap Iron and Steel Inc., New York.

Current Finished Steel Prices

Prices in cents per pound unless otherwise stated

Steel Sheets

HOT ROLLED No. 10

Pittsburgh base	1.70c
Gary, Ind. Harbor, base	1.80c
Chicago, del.	1.85c
Philadelphia, del.	1.99c
Birmingham, base	1.85c
St. Louis, del.	2.60½c

BLUE ANNEALED No. 9-10

Pittsburgh, base	1.85c
Chicago, district mills	1.95c
Chicago, delivered	2.00c
Philadelphia, del.	2.14c
St. Louis, delivered	2.20½c
Birmingham	2.00c to 2.05c
San Francisco, c.i.f.	2.50c

HOT ROLLED ANNEALED No. 24

Pittsburgh, base	2.40c
Gary, Ind. Harbor, base	2.50c
Chicago, del.	2.55c
Philadelphia, del.	2.69c
Birmingham, base	2.55c
St. Louis, del.	2.75½c

GALVANIZED No. 24

Pittsburgh, base	2.90c
Gary, Ind. Harbor, base	3.00c
Chicago, del.	3.05c
Philadelphia, base	3.19c
Birmingham, base	3.05c
St. Louis, del.	3.25½c

AUTOMOBILE No. 20

Pittsburgh, base	3.10c

FURNITURE

Pitts., No. 10 heavy	2.75c
Pitts., No. 20 light	3.35c

TIN MILL BLACK No. 28

Pittsburgh, base	2.55c to 2.65c
Gary base	2.65c to 2.75c
St. Louis, del.	2.90½c

HEAVY COLD ROLLED No. 10

Pittsburgh base	2.35c
Gary, Ind. Harbor, base	2.45c
Chicago, del.	2.50c
Philadelphia, del.	2.64c
St. Louis, del.	2.70½c

COLD ROLLED No. 20

Pittsburgh, base	2.95c
Gary, Ind. Harbor, base	3.05c
Chicago, del.	3.10c
Philadelphia, del.	3.24c
St. Louis, del.	3.30½c

Tin and Terne Plate

Prices per 100 pound box Pittsburgh

Tin plate, coke base	$5.00

Gary, Ind., base 10 cents higher.

Long ternes, 24, unassorted, lb.	3.15c

Wire Products

(To Jobbers-Merchant Trade)

F.o.b. mills, 100 lb. keg

Standard wire nails	$1.90 and 2.00
Cement coated nails	1.90 and 2.00
Galvanized nails	3.90 and 4.00

(Per pound)

Polished staples	2.35c and 2.45c
Galvanized staples	2.60c and 2.70c
Barbed wire, gal.	2.55c and 2.65c
Annealed fence wire	2.35c and 2.45c
Galvanized wire	2.80c and 2.90c

Woven wire fencing, retailers, Pittsburgh-Cleveland, net ton $65.

(To Manufacturing Trade)

Plain wire, 6-9 gage	2.20c
Spring wire	3.20c

Joliet, DeKalb, Waukegan, Ill., Anderson, Ind., Chicago, $1 over Pitts.-Cleve.; Duluth and Worcester, Mass., $2 higher; Fairfield, Ala., $3 higher.

Rivets

Struc. c.l., Pitts.-Cleve.	2.75c
Struc., c.l., Chicago	2.85c
7/16-in. smaller, Pitts.	70, 10 and 5 off
Chi., Cleve.	70 to 70, 10 and 5 off

Steel Plates

Pittsburgh, base	1.60c
Philadelphia, del.	1.80½c
New York, delivered	1.88c
Boston, delivered	2.00c
Chicago, base	**1.70c to 1.80c**
Cleveland, base, for railroads	1.65c
Lackawanna, N. Y., base	1.75c to 1.80c
Birmingham, base	1.75c to 1.80c
Coatesville, Pa., base	1.70c
Pacific Coast, c.i.f	2.00c
St. Louis, del.	1.95½c

Structural Shapes

Pittsburgh, base	1.60c
Philadelphia, del.	1.76c
New York, del.	1.85½c
Boston, del.	**1.98½c**
Chicago, base	1.70c to 1.80c
Cleveland, delivered	1.78½c
Lackawanna, N. Y., base	1.75c to 1.80c
Birmingham base	1.75c to 1.80c
Pacific Coast, c.i.f.	2.05c to 2.15c

Bars

SOFT STEEL

Pittsburgh, base	1.60c
Chicago, base	1.70c
Birmingham base	1.75c to 1.80c
Lackawanna, N. Y., base	1.70c to 1.75c
Pacific Coast, c.i.f.	2.05c
Cleveland, base, local del.	1.65c
Cleveland base, out. del.	1.65c
Philadelphia, del.	1.89c to 1.94c
New York, del.	1.93c
Boston, del.	2.00c
Pittsburgh, cold finish	**1.85c**
Pittsburgh, forg. qual.	**1.90c**

RAIL STEEL

Chicago Heights	1.60c
Eastern mills	1.50c to 1.55c
Pittsburgh	1.30c to 1.35c

IRON

Chicago, base	1.70c to 1.80c
New York, delivered	1.93c
Philadelphia, delivered	1.89c
Pittsburgh, refined	2.75c to 4.25c

REINFORCING

Pitts., billet cut lengths	1.75c
Stock lengths, mill	1.60c
Chi., billet	1.60c to 1.80c
Chi., rail steel	1.60c to 1.65c
Chi., rail steel, bridge and culvert	1.60c to 1.65c
Philadelphia, cut lengths	2.14c
Cleveland, cut lengths	1.95c to 2.05c

Cold Finished Bars, Shafting

Base, Pittsburgh, Chicago, Buffalo and Cleveland	2.10c
Shafting, turned and ground, mill	2.45c to 2.90c

Corrosion, Heat Resist. Alloys

Base, Pittsburgh

18 per cent chrome, 8 per cent nickel Sheets, 35c; plates, 31c; bars, 28c.

	A	B	C	D
Bars	19c	20.5c	23c	28c
Plates	21c	22.5c	25c	30c
Sheets	26c	27.5c	30c	35c
Hot strip	19c	20.5c	23c	28c
Cold strip	28c	29.5c	32c	37c

Carbon 0.12 and under; no nickel. A has chrome 15% and under, B over 15/18% inc., C over 18/23% inc., D over 23/30%.

Wrought Washers

Carloads, Pitts. dist.	$6.50 to $6.75 off
Carloads, Chicago dist.	7.00 to 7.50 off

Alloy Steel

Hot Rolled—F.o.b. Mills

Alloy Quality Bars, 2.65c, mill

S.A.E.	Alloy Diff.	S.A.E.	Alloy Diff.
2000	0.25	1.25-1.75 Ni.	1.05
2100	0.55	5100 .80 - 1.10	
2300	1.50	Cr.	0.45
2500	2.25	51.00 Cr.	
3100	0.55	spring	0.20
3200	1.35	6100 bars	1.20
3300	3.80	6100 Spring	0.95
3400	3.80	Cr., Ni., Van.	1.50
4100 .15 to .25 Mo.	0.50	Carbon Van.	0.95
4600 .20 to .30 Mo.		9250 (flats)	0.25
		9250 (rds.,sq.)	0.50

Strip, Hoops Bands

Hot strip, to 6-in., Pitts.	1.65c
Do, 6 1/16 to 24-in., Pitts.	1.55c
Hot strip, bands 6 in. and under, Chicago	1.75c
Do. 6 1/16 to 24 in.	1.65c
Cooperage hoop, Pitts.	1.70c to 1.80c
Do, Chicago	1.85c to 1.95c
Cold rolled strip, Pitts., Cleve., 3 tons, over	2.15c
Worcester, 3 tons, over	2.30c

Rails, Track Material

Standard bess. and open hearth rails, mill	$43.00
Relay rails, Pitts., 20 to 45 lbs.	$22.00 to $26.00
50 to 75	20.00 to 24.00
80 to 100	24.00 to 27.00
Light rails, 25-45, mills	$34.00
Light rails, Chicago	$36.00
Angle bars, Chi. base	2.75c
Spikes, railroad, mills	2.70c
Spikes, railroad, 7/16-in. and smaller, Pitts.	2.70c
Spikes boat, barge, Pitts.	2.90c
Spikes, railroad, Chi.	2.80c
Track bolts, Pitts., steam roads	3.80c
Do. standard, jobbers	73 off list
Track bolts, Chicago	3.80c
Tie plate, mills	$39.00

Bolts and Nuts

Pittsburgh, Cleveland, Birmingham, Chi.

Discounts to legitimate jobbing or large consuming trade for full-case lots apply to May 10, 1930, lists.

CARRIAGE BOLTS

All sizes, cut thread ..... 73 and 10 off

Rolled thread ⅜ x 6 and smaller take 10 per cent lower list.

Eagle list ..... 73 and 10 off

MACHINE BOLTS

All sizes, cut thread, lag screws, plow bolts, Nos. 1-2-3-7 heads, tap bolts, blank bolts, stud bolts without nuts ..... 73 and 10 off

Tire bolts, 60, 10 and 10 off.

Stove bolts, 80, 10, 10, 5 off in pkgs.; 80, 10, 5, 2½ off in bulk.

Rolled thread machine bolts, ⅜ x 6 and smaller take 10 per cent lower list.

NUTS

Semifinished ..... 73 and 10 off

HEXAGON CAP SCREWS

Milled ..... 80-10-10-5 off

Upset 1 in. diam. and smaller ... 85-10 off

SQUARE HEAD SET SCREWS

Milled ..... 80-5 off

Upset 1 in. and smaller ..... 80-10-5 off

Upset, larger than 1 in. ..... 80-5 off

Cut Nails, Chain, Piling

Cut nails, c.l. Pittsburgh 2.50c

Do. less carloads, 5 kegs or over, 2.75c; less than 5 kegs 2.90c.

Chain, BB, BBB, 9/16-1½ in.	33 1/3 off
Sheet piling, Pitts.	1.90c

Bars

Little Change in Demand or Production—Prices Hold Steady but Without Real Test

BAR PRICES, PAGE 59

Chicago—Bar mill schedules continue close to last week as specifications and sales hold somewhat higher volume than in the last part of July. The price of 1.70c, Chicago, for soft steel bars has been without pressure due to absence of large inquiries. The Chrysler Plymouth line takes a steady volume of steel bars this week, from this district. Other automotive needs are small. General manufacturing is of a spotty character.

New York—The 1.60c, Pittsburgh, price on commercial steel bars continues to rule on new business. Common iron bars also appear fairly steady at this level. Little attractive business is coming out at present, however.

Philadelphia—Demand for steel bars is spotty and prices have undergone no test. The prevailing quotation by all sellers is 1.60c, Pittsburgh.

Pittsburgh—Steel bar demand shows little change but is less active than a month ago. Requirements of miscellaneous consumers show less of a decrease than those of automotive interests. The market is tested only on small lots but is fairly steady at 1.60c, Pittsburgh. Withdrawal of the Detroit base on bars has met with general satisfaction since its maintenance meant a lower net price to mills. Little business was done on the 1.75c, Detroit, base during the brief period it was in effect.

Cleveland—The local merchant producer of steel bars has dropped its price of delivery in Cleveland from 1.70c to 1.65c, the same price that is quoted for shipment to outside points. Other producers hold to 1.60c, base, Pittsburgh, equivalent to 1.785c, delivered, Cleveland. The market reflects the light volume of business coming from the automotive industry, and current sales are restricted to small, miscellaneous lots.

Detroit—Soft steel bars are now quoted in this district on a 1.65c, Cleveland, base, or 1.60c, Pittsburgh. The short-lived Detroit base of 1.75c has been withdrawn by those interests making this figure over the past four weeks. Attempts are being made to establish a figure of 1.865c, delivered Detroit, price, regardless of mode of transportation of bar stock into this section.

Brazil Stamping & Mfg. Co., Brazil, Ind., has changed its name to Brazil Co. Inc.

Cold-Finished Dull and Buying Grows Less

Cold Finished Prices, Page 59

Pittsburgh — Shipments of cold-finished steel bars continue to decline slowly as a result of poor demand from automotive interests and reduced requirements of miscellaneous consumers. Little new business is appearing to test the price, which usually is 2.10c.

Cleveland—Shipments are falling off as contracts taken at 2.00c, base, Cleveland, are being worked out. New business taking the 2.10c price is in small lots.

Tin Plate Specifications Seasonally Lighter

Tin Plate Prices, Page 59

Pittsburgh—Tin plate operations are lighter, output currently averaging 50 to 55 per cent against 55 to 60 recently. Specifications are moderately smaller than a month ago in line with the usual seasonal trend while packing of the two leading vegetable crops, tomatoes and corn, will not enter its peak period for a number of weeks. The early tomato pack, however, now is being started in some districts. Peaches are plentiful and a fairly large pack is expected. Tin plate continues $5, Pittsburgh, per base box.

Plates

Miscellaneous Business Shows Some Improvement—2500 Tons Placed for Cleveland Pipe Line

PLATE PRICES, PAGE 59

Chicago—Steel plate sales and specifications in the past two weeks, have slightly bettered those of the period preceding. Tank work after fairly good activity during the early summer remains well maintained at a slightly lower level. New tank inquiry for plates, however, is without feature. Pressed Steel Car Co. will fabricate about 3750 tons of plates and light structural material for the Northern Pacific underframes and car superstructures. Plate mill operation approximates 35 per cent for district mills. Prices continue nominal at 1.70c, mill, base.

Pittsburgh—Plate demand continues quiet with little change noted in new business. A dredge for the United States engineers, St. Louis district, will require 450 tons of plates and shapes. Plate requirements of pipemakers continue to decline. The market is fairly steady on new business at 1.60c.

Cleveland—Demand for plates continues largely restricted to small lots, from a diverse line of consumers. The 2500 tons for the city of Cleveland's Belvoir boulevard pipe line has been awarded to Farrar & Trefts, Buffalo. This line will be 48 and 54-inch, electrically welded.

Outside mills quote 1.60c, Pittsburgh, on plates. The Cleveland base on plates, however, applies to railroad requirements.

New York—The market for plates is quiet, although several sizable tonnages are pending.

Philadelphia—Plates are moving slowly at 1.70c, base, Coatesville, Pa. The Atlantic Refining Co. has placed nine tanks with the Chicago Bridge & Iron Works, Chicago, in addition to 1500 tons of plates for tanks noted recently as placed. The Larson Steel Piling Co., Philadelphia, will supply 400 tons of German piling for jetties at Cape May, N. J.

Contracts Placed

2500 tons, 48-inch and 54-inch pipe, Belvoir boulevard, Cleveland, to Farrar & Trefts, Buffalo.

Contracts Pending

450 tons, pipe line dredge, for United States engineers, St. Louis district; Dravo Contracting Co., Pittsburgh, low bidder.

Chrome Steel Tubing Use Grows In Oil Industry

Consumption of seamless steel tubing containing 4 to 6 per cent chrome, originally brought out a little more

than five years ago through co-operation of the Crucible Steel Co. of America, Spang-Chalfant & Co. and the Texas Co., is increasing.

These tubes have several uses, but that of chief importance is in oil cracking stills. In this use the 4 to 6 per cent chrome steel has become practically a standard material. Average analysis of these tubes is 5 per cent chrome, 0.20 carbon maximum with silicon and manganese contents normal.

This alloy withstands the sulphur condition in raw crude oils to the extent of having a life three to six times that of plain carbon steel. Another advantage is its plastic deformation when overheated; it gives warning of impending failure by stretching. The price of the 4 to 6 per cent chrome seamless tubing is about double that of plain carbon seamless tubing. The creep characteristic of 4 to 6 per cent chrome steel is about the same as that of plain carbon steel.

A recent development is a small addition of molybdenum or tungsten to 4 to 6 per cent chrome steel. Such additions result in a great increase in its creep characteristic, and are made when it is desired to make studs and bolts and other parts for use with steam and in the oil idustry under high temperatures.

Semifinished Steel Sales Continue Light

Semifinished Prices, Page 70

Pittsburgh—Shipments of semifinished steel continue light and new business is in small lots for prompt requirements. Sheet bars are quiet and less active than during the latter part of July. Producers usually quote $29 for rerolling billets, slabs and sheet bars with forging billets and wire rods $35.

Cleveland — Specifications for sheet bars, billets and slabs show little change from the light volume of recent weeks. Prices hold at $29, base, Cleveland and Youngstown, O., for sheet bars, billets and slabs. The leading merchant producer here has reduced the number of its active open hearths from five to three.

Report of a series of investigations on the deoxidation of steel with silicon are presented in technical paper No. 492 published by the bureau of mine.s The authors of the bulletin are C. H. Herty Jr., G. R. Fitterer, and C. F. Christopher. Copies may be obtained from the superintendent of documents, Washington, for 15 cents.

Railroads

New York Central Inquiry for 500 Cars Is Near—Northern Pacific Orders 500 Bodies

TRACK MATERIAL PRICES, PAGE 59

New York—New York Central is contemplating the purchase of 500 freight cars, 300 of one type and 200 of another. It is understood that a number of refrigerator cars are included.

Parts of 200 box cars recently noted as booked by the Gregg Co. Ltd., Hackensack, N. J., for the American Railroad of Porto Rico, will be supplied by both of the company's plants in this country and in Belgium, with assembly to be made in Porto Rico. This is in accordance with the usual practice of American builders in supplying equipment for export.

Freighth car awards in July, totaling only 367, brought the seven-month total for 1931 up to 7411 cars, compared with 33,993 in the like period of 1930 and 63,157 in 1929. Following are monthly comparisons of freight iar awards:

	1931	1930	1929	1928
Jan.	100	5,072	13,196	4,160
Feb.	50	17,027	15,944	10,220
March	2,166	6,118	12,023	2,958
April	2,798	1,997	8,205	6,043
May	20	1,392	7,562	2,531
June	1,910	998	5,886	2,422
July	367	1,389	341	582
7 mo.	7,411	33,993	63,157	28,916
Aug.	.....	1,111	2,854	677
Sept.	.....	576	4,517	1,378
Oct.	.....	4,116	19,506	2,853
Nov.	.....	2,621	6,361	6,140
Dec.	.....	2,729	9,710	4,799
Total	.....	45,146	106,105	44,763

Pennsylvania railroad opened bids Aug. 11 on 1150 tons of locomotive tires.

Chicago — Northern Pacific has placed 500 underframes and superstructures, requiring 3750 tons of bars, plates, shapes and other finished steel products, with the Pressed Steel Car Co., Chicago plant. Otherwise, railroad purchasing is confined to the regular week-to-week bare necessity items. Releases of track accessories have been fairly good, continuing at around 1500 to 2000 tons weekly to local district mills. Slightly increased activity in some railroad circles on releases of maintenance of way materials bespeaks of a larger volume of railroad steel purchases in the near future and lends support to the opinion that September and October mill operations will better August. It now appears fairly certain that there will be no major rail mill shutdowns this month.

Pressed Steel Car Co., Pittsburgh, is preparing to build six plant buildings at 136th and Brandon streets, Chicago. The buildings will be 1-story steel and brick, the largest being 90 feet wide and 360 feet long.

Car Orders Placed

Northern Pacific, 500 box cars, to own shops; 500 underframes and 500 sets of superstructure parts, requiring 3750 tons of steel, for these cars will be furnished by the Pressed Steel Car Co., Chicago.

Locomotives Placed

Lehigh Valley, two gasoline-electric locomotives, to Electro-Motive Co.; two oil-electric locomotives to American Locomotive Co.; and one oil-electric locomotive, to Ingersoll-Rand Co.

Car Orders Pending

New York Central, 500 freight cars, 300 of one type and 200 of another.

Locomotives Pending

Amtorg Trading Corp., New York, two or more tank locomotives for shipment to Russia.

Londoners Win Prizes in Simonds' Essay Contest

Prizes of $1000 and $500 in the essay contest initiated by Alvan T. Simonds, Fitchburg, Mass., were awarded to Londoners in the 1930 contest, results of which have just been announced. This is the first time both first and second prizes have been awarded outside the United States. The subject was, Government Interference with the Free Play of Economic Forces.

C. E. R. Sherrington was awarded the first prize of $1000. He formerly was instructor in economies at Cornell University and now is lecturer in transport in the London school of economics and political science, London, Eng. Second prize of $500 went to Frederick Geidt, connected with Morton Bros., stock and share brokers, also of London.

Harbison-Walker Refractories Co., Pittsburgh, has declared a quarterly dividend of 25 cents on the common stock payable Sept. 1 to record Aug. 22. This places the stock on a $1 annual dividend basis, comparing with $2 previously.

Structural Shapes

Placements Are Double Last Week's, With New Inquiry Over 43,000 Tons—Look for Speedy Action on 85,000 Tons at New York in 5 Weeks—Many Bridges Up

STRUCTURAL SHAPE PRICES, PAGE 59

New York—The immediate outlook in the structural market appears to be the best in eight months, with leading trade interests estimating approximately 85,000 tons as likely to come up in the metropolitan district within the next five weeks. The latest sizable job involves 7000 tons for two bridges at Shelter Island, off Long Island. Current buying is light. Prices are unchanged at 1.70c, Bethlehem.

Structural bookings in the metropolitan district in July aggregated 18,805 tons, according to figures just compiled by the New York Structural Steel Board of Trade. This compares with 15,236 tons in June and 62,103 tons in July of last year. This tonnage is exclusive of bridges, piers and subway work.

Boston—Structural awards of the past week total almost 1300 tons, with 400 tons pending—a greater show of activity.

Philadelphia—Structural demand generally is light, although considerable school work is up. Little improvement in the fall is foreseen. Plain material is steady at 1.70c, nearest mill.

Buffalo—An inquiry for 1000 tons of fabricated material for the new Sisters hospital here is reported this week. This is in addition to another 500-ton inquiry recently reported for another local hospital. Several other projects of fair size are being figured, with prospects that local demand for structural shapes will show marked improvement.

Pittsburgh—Structural shape inquiry is spotty, while awards are light. A clothing store and a home for the aged each will require 450 tons. Specifications for plain shapes are declining slowly, and are slightly smaller than a month ago. Shapes usually are 1.60c, Pittsburgh.

Cleveland—Fabricators are figuring on numerous jobs, but the majority of them are small. Work continues to be taken close to, or actually below cost in some instances. Bids are going in on 275 tons for a warehouse for the International Harvester Co., at Toledo, O. For plain shapes the market is holding at 1.60c, base, Pittsburgh.

Chicago — Awards are slightly more numerous, headed by 7500 tons for power transmission line towers allocated among three fabricators, towers to be built on a line between Peoria, Ill., and Chicago. Bidders await action on the general contract award of 45,000 tons, Chicago postoffice, on which the John Griffiths & Son Co., Chicago, is low bidder. The Illinois waterways commission will take 2200 tons of structurals for three bascule bridges at Joliet, Ill. A postoffice at St. Paul takes 5000 tons, and 2000 tons will be required for a municipal auditorium, Kansas City, Mo. Fabricated structural prices continue weak, but plain structural material is held at 1.70c, mill.

Contracts Placed

7500 tons, power transmission line towers, Peoria, Ill., to Chicago, for the Insull interests, allocated as follows: 2950 tons, to Blaw-Knox Co., Blawknox, Pa.; 2950 tons, to Aeromotor Co.; and 1600 tons to Gary Structural Steel Co., Gary, Ind.

3800 tons, hydro-electrification work, Canada, to Canadian Bridge Co. Ltd., Hamilton, Ont.

1410 tons, assembly plant for Ford Motor Co., Mexico City, Mex., to Monterey Steel Co., Monterey, Mex.

1350 tons, for Times-Star building, Cincinnati, to Wheeling Structural Steel Co., Wheeling, W. Va., through Ferro-Concrete Co., contractors, Cincinnati.

950 tons, Solomon Juneau junior high school, Milwaukee, to Worden-Allen Co.

700 tons, bridge over Merrimac river, St. Louis, to Stupp Bros. Bridge & Iron Co., St. Louis.

635 tons, bridge between Schuyler and Yates counties, New York, to Lackawanna Steel Construction Corp., Buffalo.

605 tons, Lakeside grade separation bridges, Milwaukee, distributed among five Milwaukee structural shops.

600 tons, building for Jefferson Electric Co., Bellwood, Ill., to Austin Co., Cleveland.

550 tons, bridge, Brian Junction, Tex., to Missouri Valley Bridge & Iron Co., Leavenworth, Kans.

500 tons, courthouse and memorial building, Newton, Mass., to New England Structural Steel Co., Everett, Mass.

500 tons, columns for Seventh avenue postoffice, New York, to Shoemaker Bridge Co., Pottstown, Pa.

415 tons, bridge over Big Horn river, near Helena, Mont., to unstated interest. General contract to E. J. Dunnigan, St. Paul.

384 tons, Shawmut avenue bridge, Boston, to McClintic-Marshall Corp., Bethlehem, Pa.

383 tons, two school buildings, Freeport, L. I., to J. Kleim Iron Works Inc., Astoria, N. Y.

360 tons, grade crossing elimination, for New York Central, to American Bridge Co., New York.

325 tons, postoffice, Erie, Pa., to Erie Steel Construction Co., Erie, Pa.

300 tons, high school, Fayetteville, N. Y., to Syracuse Engineering Co., Syracuse, N. Y.

300 tons, Grotto temple, Pittsburgh, to Guibert Steel Co., Pittsburgh.

280 tons, six buildings, 136th and Brandon streets, Chicago, for Pressed Steel Car Co., to Austin Co., Cleveland.

250 tons, additional, for Cord building, Los Angeles, to McClintic-Marshall Corp., Bethlehem, Pa.

250 tons, Humboldt avenue substation of Commonwealth Edison Co., Chicago, to Vierling Steel Works, Chicago.

200 tons, hangar, Schultzville, Pa., to Anthracite Bridge Co., Scranton, Pa.

200 tons, Louisiana State university at Baton Rouge, to Ingalls Iron Works Co., Birmingham, Ala.

200 tons, Girl's high school, Scott and O'Farrell streets, San Francisco to Herrick Iron Works, Oakland, Calif.

200 tons, Reading railroad bridge, Logan street, Philadelphia, to Phoenix Bridge Co., Phoenixville, Pa.

200 tons, building for New Jersey Bell Telephone Co., Lyon avenue, Newark, N. J., to Hudson Structural Iron Works, Jersey City, N. J.

175 tons, building for Wilhelm paint works, Reading, Pa., to Bauman Iron Works, Reading, Pa.

175 tons, garage and storage building, Boyertown Casket Co., Philadelphia, to Richard De Cou Co., Philadelphia.

170 tons, almshouse, Stewardstown, N. H., to Federal Iron Works, East Cambridge, Mass.

140 tons, additional press supports, Chicago Daily News, Chicago, to Duffin Iron Co., Chicago.

123 tons, Lehigh Valley railroad bridge, Oaktree, N. Y., to McClintic-Marshall Corp., Bethlehem, Pa.

120 tons, Church of Our Lady of Lourdes, Jamaica Plain, Mass., to A. O. Wilson Structural Co., Cambridge, Mass.

115 tons, alterations, First National Bank, Chicago, to Wendnagel & Co., Chicago.

115 tons, Memorial drive underpass, Cambridge, Mass., to McClintic-Marshall Corp., Bethlehem, Pa.

107 tons, four small bridges for two unstated western railroads, to Vierling Steel Works, Chicago.

100 tons, Thompson run bridge, Alle-

Awards Compared

	Tons
Awards this week	24,904
Awards last week*	11,327
Awards two weeks ago	37,732
Awards this week in 1930	42,981
Av. weekly awards, 1930	35,242
Av. weekly awards, 1931	35,920
Av. weekly awards, July	29,337
Total awards to date, 1930	1,164,187
Total awards to date, 1931*	1,185,364

*Revised.

gheny county, Pa., to Fort Pitt Bridge Co., Pittsburgh.
100 tons, New York state highway bridge in Columbia county, to American Bridge Co., New York.
100 tons, Pennsylvania railroad bridge, Crafton, Pa., to American Bridge Co., New York.
100 tons, standpipe, Hallowell, Mass., water district, to Chicago Bridge & Iron Works, Chicago.
100 tons, three state bridges for Maine, to Kittredge Bridge Co., Concord, N. H.
100 tons, alterations to Clark street freight house of Wabash railroad, Chicago, to Sprague Iron Works, Chicago. H. A. Peters, contractor.
100 tons, school, Park Ridge, Ill., to Duffin Iron Co., Chicago.
Unstated tonnage, power house, Toledo, Iowa, for Iowa Railway & Light Corp., to Rock Island Bridge & Iron Works, Rock Island, Ill., through J. W. Hopp Construction Co., Cedar Rapids, Iowa.

Contracts Pending

58,700 tons, bridge, public belt railroad, New Orleans; bids Sept. 15.
45,000 tons, postoffice, Chicago; John Griffiths & Son Co., Chicago, low bidder.
22,500 tons, Union inland terminal, Port of New York Authority, Eighth and Ninth avenues, Fifteenth and Sixteenth streets, inquiry expected out shortly after Aug. 15, with likelihood bids will be opened around Sept. 18; project noted as definitely contemplated in STEEL, June 4.
16,000 tons, parcel post building, New York; bids Aug. 20.
8000 tons, dirigible hangar, Sunnyvale, Calif. Bids Sept. 23 by Bureau of Yards and Docks, Navy department, Washington.
7000 tons, two county bridges, one running between Sag Harbor and Shelter Island and the other between Greenport and Shelter Island, Long Island; bids Aug. 31.
5000 tons, postoffice, St. Paul.
4000 tons, federal building, Seattle. General contract to Murch Bros. Construction Co., St. Louis.
2200 tons, three bascule bridges over Illinois river, Joliet, Ill., for Illinois waterway commission, Springfield, Ill.
2000 tons, municipal auditorium, Kansas City, Mo.
2000 tons, Harlem hospital, New York; Psaty & Fuhrman, awarded the general contract.
2000 tons, municipal vocational school, St. George, Staten Island, N. Y. Royal Rice Construction Co., low on general contract.
2000 tons, bascule bridge, Park street, Oakland, Calif. Plans being prepared.
1000 tons, Home Economics building, Cornell university, Ithaca, N. Y.; bids being taken.
1000 tons, for Sisters of Charity hospital, Buffalo; bids about Oct. 1, Dietel & Wade, Buffalo, architects.
700 tons, courthouse, Clarksburg, W. Va.; bids being taken.
550 tons, two bridges, Warwick avenue and Garrison lane, respectively, Baltimore; bids Aug. 19.
500 tons, building, Milwaukee, for Allis-Chalmers Mfg. Co., Milwaukee.
450 tons, store at Pittsburgh, for Richman Bros., Cleveland; bids on general contract close Aug. 11.
450 tons, Jewish home for aged, Hazelwood, Pittsburgh, Pa.
425 tons, bridge over Spanish creek, Plumas county, Calif. Bids opened.
400 tons, junior high school, Fifty-ninth street and Malvern avenue, Philadelphia; bids Sept. 1.
400 tons, Second Presbyterian church, Newark, N. J., previously noted as involving an unstated tonnage.
400 tons, postoffice, Bay City, Mich.
400 tons, factory for Curtiss Mfg. Co., Glendale, Calif. General contract to L. L. Locke, Los Angeles.
325 tons, intermediate school, Brighton, Mass.
300 tons, school, Munhall, Pa.
300 tons, Y. M. C. A. building, Erie, Pa.; revised bids submitted.
275 tons, warehouse for International Harvester Co., Toledo, O., bids in.
250 tons, high school, Pottsville, Pa.; bids Sept. 3.
250 tons, Loney's lane bridge, Baltimore; Mullen Contracting Co., Baltimore, awarded contract.
220 tons, bridge over Pixley creek, Monterey county, Calif. Bids opened.
215 tons, bridge work, Bergen county, route 2, section 6; bids opened by New Jersey state highway commission, Trenton, N. J., Aug. 24.
175 tons, Pennsylvania railroad bridge, Berlin, N. J.; bids Aug. 11.
150 tons, mill building for Gledhill Road Machinery Co., Galion, O.
100 tons, two schools, Winchester, Mass.
100 tons, St. Jean convent, 175 East Seventy-fifth street, New York.
100 tons, federal training school, Washington.
100 tons high school, Chester, Pa.; bids Aug. 24.
100 tons, hangar, Airway Express Corp. of America, Crosswicks, N. J.
Unstated tonnage, elimination of Fairmount avenue grade crossing of Erie railroad at Jamestown, N. Y. Project ordered by New York state public service commission; specifications being prepared; estimated cost $346,000.

Concrete Bars

Awards Slump Further, to 3444 Tons—Fresh Pending Work Exceeds 6300 Tons, Including 1930 for Sewage Job at Chicago—Prices Are Steady in All Districts

REINFORCING BAR PRICES, PAGE 59

Chicago—Movement of concrete reinforcing bars is maintained on a fair to satisfactory plane. Though awards have been fewer in number, several good sized jobs are being released from fabricators and the mills. Rail steel reinforcing bars are 1.60c to 1.65c. The Chicago postoffice, taking about 5000 tons of reinforcing bars, is active with opening of contractors' bids Aug. 10.

A good volume of Illinois road work is expected to be let Aug. 18 and 25.

Boston—Concrete Steel Co. has booked the 125 tons of bars for the Harvard Memorial chapel. A garage projected for Commonwealth avenue will require 100 tons.

Philadelphia—The reinforcing bar market is featured by an award of 600 tons for Philadelphia sewage work, going to the Taylor Davis Co. Bars usually are 1.60c, Pittsburgh.

Buffalo—One inquiry for 100 tons of reinforcing bars for a Buffalo hospital project is reported this week, while at least half a dozen other sets of plans are being figured in anticipation of early awards of additional tonnage of good size. There is a fair demand for mesh for road construction still to be undertaken this season.

Pittsburgh—Reinforcing bar business is quieter, incoming tonnage so far this month being off from the July rate. Inquiry and awards locally are light, most jobs being limited to lots of less than 50 tons apiece. The market continues 1.60c for mill lengths.

Birmingham, Ala.—Mills are operating at 50 per cent of capacity on reinforcing concrete bars. Much work is in sight which will call for bars.

Awards Compared

	Tons
Awards this week	**3,444**
Awards last week	**5,106**
Awards two weeks ago	**7,167**
Awards this week in 1930	**1,280**
Av. weekly awards, 1930	**6,990**
Av. weekly awards, 1931	**7,034**
Av. weekly awards, July	**6,759**
Total awards to date, 1930	**222,881**
Total awards to date, 1931	**232,121**

Contracts Placed

600 tons, Boys' Reformatory, Warwick, N. Y., to Truscon Steel Co., Youngstown, O., through Boyajohn & Barr, Columbus, O.
600 tons, state hospital buildings, Fairfield, Conn., to Concrete Steel Co., New York, through Fireproof Products Inc., Hartford, Conn.
500 tons, road work, Massachusetts, to Truscon Steel Co., Youngstown, O.
250 tons, fine arts building, Louisiana State university, Baton Rouge, La., to Laclede Steel Co., St. Louis.
250 tons, field and recreation building, Louisiana State university, Baton Rouge, La., to Truscon Steel Co., Youngstown, O.
240 tons, pier, foot of Van Ness avenue, San Francisco, to Soule Steel Co., San Francisco.
130 tons, school, Visalia, Calif., to Kyle & Co., Fresno, Calif.
125 tons, Harvard Memorial chapel, Cambridge, Mass., to Concrete Steel Co., New York.
118 tons, highway work in San Diego county, Calif., to unstated interest.

(*Concluded on Page 67*)

Strip

Production at Low Point as Buying Fails to Materialize—Prices Present No Variation

STRIP PRICES, PAGE 59

Pittsburgh—Occasional small orders for strip are providing operations of only 15 to 20 per cent and in view of continued light operations of the automotive industry strip producers look for little improvement this month. Inquiry for automotive purposes is not due for early closing. The market generally continues steady with hot strip 1.55c and 1.65c and cold-rolled strip 2.15c.

New York—While tonnage is still light, hot-rolled strip prices are firm at 1.55c, Pittsburgh. Such tonnage as is out against lower prices is being speeded up by sellers as much as possible. In some cases the present prices have been substituted for the old where shipments have been continually deferred.

Philadelphia—Strip prices are held firmly at 1.55c, Pittsburgh, for wide, and 1.65c for narrow. Pending contracts under these figures are believed to be nearly filled. Cold-rolled is 2.15c, Pittsburgh.

Cleveland—Prices are fairly satisfactory, but the volume of orders is discouragingly small. On the business being placed 1.55c and 1.65c for wide and narrow hot-rolled strip are firm. Cold-rolled strip generally is 2.15c, base, Cleveland.

Chicago—Orders for cold-rolled strip fail to maintain 20 per cent mill operation, being approximately some four points less than last week. Auto demands continue dull for both hot and cold-rolled and building lines are inactive. On cold-rolled, 2.15c base is without deviation. Hot-rolled is quoted 1.65c and 1.75c, Chicago, for wide and narrow, respectively.

Operations Make Slight Gain From Last Week

Youngstown, O.—The trend of Youngstown steel plant operation, which has fluctuated rather widely recently, again has turned upward, showing a gain of nine points, to 42 per cent.

The increase was caused by resumption of melting operations at the Republic Steel Corp. open-hearth plant, idle last week. Twenty-eight furnaces were scheduled to be melting at the start of the week against 23 active last week. Youngstown Sheet & Tube Co. is again at 38 per cent of capacity while Carnegie Steel Co. at 46 per cent and Sharon Steel Hoop Co. at 34 per cent are maintaining last week's rates.

Philadelphia—Ingot operations of eastern steel mills are unchanged from last week at 32 per cent of capacity. A leading mill maintains a rate of 33 per cent.

Buffalo—Twelve open-hearth furnaces are in operation in the Buffalo district, representing 32 per cent of capacity.

Pittsburgh—Ingot production is higher at 30 to 35 per cent, compared with 30 per cent recently. Carnegie Steel Co. has started two blast furnaces recently banked, resulting in a net gain of one active stack and leaving 13 of 54 steelworks furnaces in blast. Sheet production is unchanged at slightly above 35 per cent with tin plate output lower at 50 to 55. Strip schedules are down at 15 to 20 per cent with pipe continuing 30 to 35.

	Per Cent
Operations this week	32
Operations last week	30
Operations two weeks ago	32
Operations this week, 1930	58
High for 1931, (March 19)	57
Low for 1931, (July 23)	30

Cleveland—Steel mill operations declined eight points, from 29 to 21 per cent of capacity, three open hearths being rendered inactive.

Chicago—Open-hearth operations are down fractionally this week to 29-30 per cent, as against last week's 30 per cent. A total of 39 of 144 open hearths are active. Active steelworks blast furnaces number eight out of 36, one by the interest at Joliet being banked for the week.

Birmingham, Ala.—Based on ingot production steel mill operation is estimated at 40 per cent of capacity. Gulf States Steel Co. has three open hearths and Tennessee Coal, Iron & Railroad Co. seven active.

Warehouse Trade Dull And Small Lots Rule

Warehouse Prices, Page 81

New York—Decision with regard to the establishment of new width extras on blue annealed sheets out of warehouse is still pending. One factor in the delay is that one of the larger eastern sheet mills has not established the new width extras on gages No. 24 and higher. General demand is below the July rate.

Boston—A fair amount of materials is moving out of warehouses. These reflect the constancy with which small projects develop, which has been the backbone of this line of business.

Philadelphia—Demand for steel products from warehouse is less active than during July. Prices are unchanged.

Pittsburgh—Sales remain at a low ebb. Business slumped late in July and little change has been noted so far this month. Prices are not being tested. Bars and small shapes continue 2.60c, with reinforcing bars now at the same level.

Cleveland—Demand for iron and steel out of warehouse continues on a low level. Midsummer dullness has reached maximum proportions. July shipments showed a slight decline from the June volume. Prices are holding with every evidence of firmness and some improvement is foreseen for September, hence concessions are being held to a minimum.

Detroit—August sales are holding a total slightly ahead of the same July period. Orders continue to be of small-sized character. Prices are unchanged.

Cincinnati—Warehouse tonnage this month, at the present rate, will about equal July. Recently demand for light sheets, blue annealed and black, has been decidedly improved. Prices are unchanged.

Chicago—Sales are at the same pace as last week and so far in August run comparable with July totals for most jobbing interests. Prices are unchanged except for a revision in machine and carriage bolts from 60, 10 and 10 to a flat 70 off.

St. Louis—Business of warehouses during July fell slightly below June and about 20 per cent under July a year ago. No change worthy of note has taken place since Aug. 1 and ordering from practically all sources is on a hand-to-mouth basis.

Truscon Steel Co., Youngstown, O., reports for six months ended June 30 a net loss of $280,586, compared with net profit of $732,185 in the corresponding period of 1930. Second quarter gave a profit of $61,403, compared with net profit of $601,280 in the corresponding period of 1930.

Concrete Bars Placed

(*Concluded from Page 63*)

111 tons, Los Angeles county, Calif., to George Paonessa, Los Angeles.

110 tons, for Nurses' Home, Holmdell, N. J., and hangar, Newark Airport, N. J., to Truscon Steel Co., Youngstown, O.

110 tons, girl's high school, Scott and O'Farrell streets, San Francisco, to Gunn, Carle & Co., San Francisco.

100 tons, Sunday school, Honolulu, T. H., to unstated interest.

100 tons, undergrade crossing, at El Rio, Calif., to unstated interest.

100 tons, postoffice Lafayette, Ind., to Olney J. Dean & Co., Chicago, through Joseph A. Tintari, Chicago Heights, Ill., contractor.

Unstated tonnage, power house, Toledo, Iowa, for Iowa Railway & Light Corp., to O. W. Latimer Co., Cedar Rapids, Iowa, through J. W. Hopp Construction Co., Cedar Rapids.

Contracts Pending

1930 tons, additional, Calumet sewage project, Chicago; bids Aug. 11.

560 tons, St. Mary's hospital, Racine, Wis.

547 tons, for plaza to Western Hills viaduct, Cincinnati; bids to be opened by Cincinnati Union Terminal Co. Aug. 18.

415 tons, Loney's lane bridge, Baltimore; Mullen Contracting Co., Baltimore, awarded contract.

325 tons, postoffice building, Louisville, Ky.

290 tons, pachyderm house, Chicago zoo, Chicago; bids Aug. 12.

250 tons, mole for Fish Harbor extension, Los Angeles. Bids opened.

250 tons, for state highway Route S 24, from Elmora avenue to Stuyvesant avenue, Union county, N. J.

250 tons, State highway Route 25, Woodbridge, N. J., to Route 4, Middlesex county, N. J.

227 tons, R.K.O. studio, Hollywood, Calif. Bids opened.

208 tons, bridge over Bixby creek, Monterey county, Calif. Bids opened.

200 tons, Administration building and power house, Hackensack, N. J.; bids open Aug. 12.

160 tons, viaduct, Tulsa, Okla.; bids Aug. 18.

140 tons, five bridges in Tulare county, Calif. Bids opened.

107 tons, bridge work, route 2, section 6, Bergen county; bids opened by New Jersey state highway commission, Trenton, N. J., Aug. 24.

100 tons, bridge over South Fork of Eel river, Humboldt county, Calif. Bids opened.

100 tons, museum, Twentieth and Main streets, Santa Ana, Calif. Plans being prepared.

100 tons, hospital, Sixty-fifth and Crenshaw boulevard, Los Angeles. Bids being taken.

100 tons, garage, Commonwealth avenue, Boston.

100 tons, for Sisters of Charity hospital, Buffalo; bids about Oct. 1. Dietel & Wade, Buffalo, architects.

Unstated tonnage, elimination of Fairmount avenue grade crossing of Erie railroad at Jamestown, N. Y. Project ordered by New York state public service commission; specifications being prepared; estimated cost $346,000.

Of the 177,032 American railroad freight cars needing repair July 15, those needing heavy repairs totaled 125,893.

Indiana Class Scrap Rates Upheld by Court

Indianapolis—New freight rates putting scrap iron on a classification basis in Indiana were sustained by the Indiana supreme court in a recent decision. The Indiana public service commission's efforts to establish the classification were in effect upheld though it is pointed out that the new freight rates will be delayed in actuality by further litigation from the carriers.

Builds 300,000 Microscopes

The optical works of E. Leitz, Wetzlar, Germany, recently completed its 300,000th microscope, and in commemoration presented the instrument to Prof. Dr. Ludwig Aschoff, scientist and physician of Freiburg in Breisgau, Germany. The presentation follows a custom of E. Leitz to present every 50,000th microscope to an outstanding scientist or institute. A number of Leitz microscopes and other optical equipment are in use in this country in iron and steel research. Representative of the German company in the United States is E. Leitz Inc., 60 East Tenth street, New York.

Financial Notes

Crucible Steel Co. of America, New York, reports for the first six months of 1931 net earnings of $482,830, compared with net income of $2,317,773 for the like period of 1930.

□ □ □

Harbison-Walker Refractories Co., Pittsburgh, reports for the June quarter net profit of 20 cents a common share, compared with 74 cents a share in the June quarter of 1930.

Pipe

Texas Co. Awards 25,922 Tons to Three Makers—Smith Corp. Takes 15,000 to 20,000 Order

PIPE PRICES, PAGE 81

Pittsburgh—Closing of 286 miles or 25,922 tons of 12-inch line pipe by the Texas Co., New York, brought tonnage to three producers this week. Republic Steel Corp., Youngstown, O., took 130 miles or 15,470 tons; National Tube Co., Pittsburgh, and Youngstown Sheet & Tube Co., Youngstown, O., divided 78 miles or 10,452 tons. Another oil company is about to close for 8000 tons of 10¾-inch pipe line. Standard Oil Co. of New Jersey has placed 2500 tons of 8⅝-inch pipe for an extension in that field. A line also is proposed for central New York state to tie in with a line with the Lycoming Natural Gas Corp. from Tioga, Pa., to Syracuse, N. Y. Pipe mill operations hold around 30 to 35 per cent.

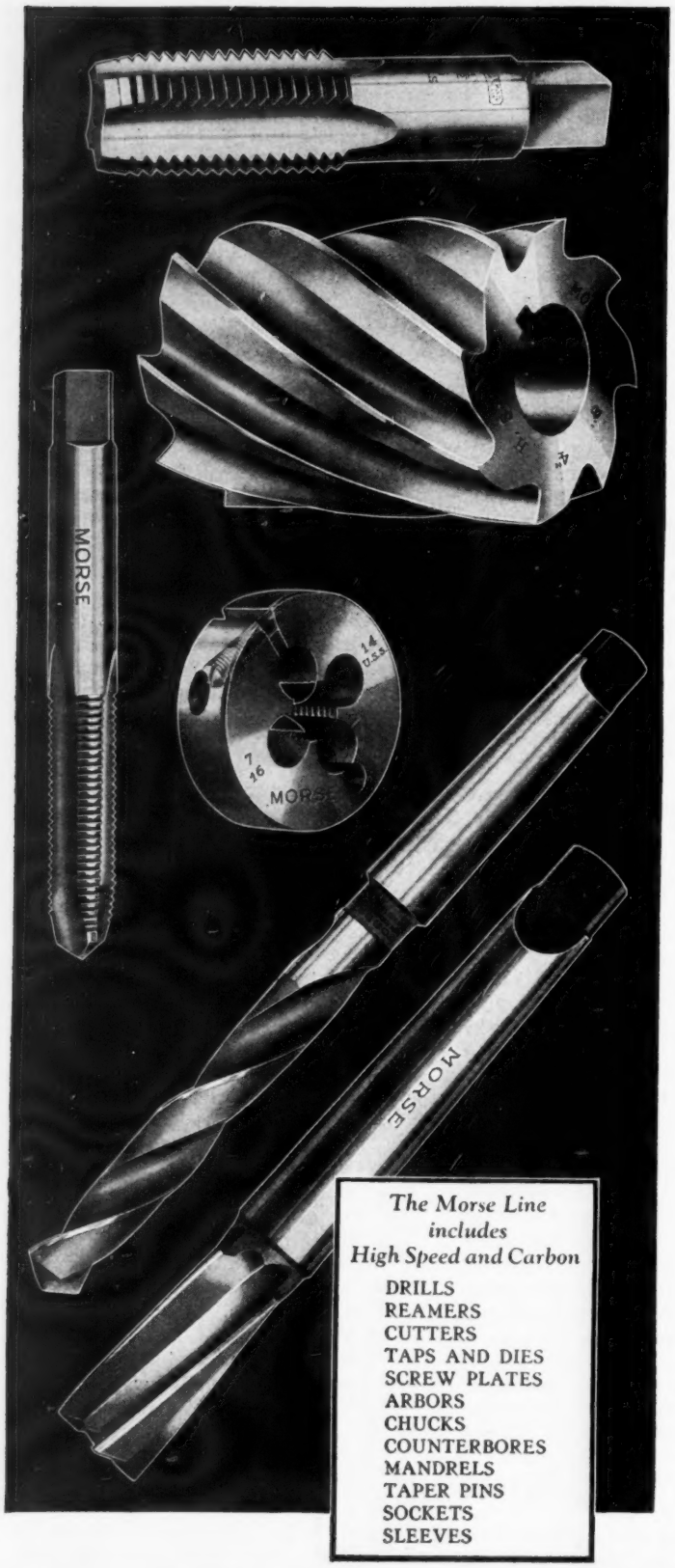
Boston—Little more than odd tonnages for pipe was done in the last week, but Monday of this week bids were opened at Hartford, Conn., on 2000 tons of 6 to 16-inch pipe. There is understood to be sharp competition for this contract. Otherwise few new projects are ahead for the immediate future.

New York—Approximately 10,000 tons of 18-inch seamless pipe for foundations for the municipal Westside elevated highway, between Twenty-second and Thirty-eighth streets, has been placed with the National Tube Co. Pending are 5000 tons of line pipe for an oil company and 200 tons of 12-inch steel pipe for the Texas Co. Cast pipe buying is featured by the placing of 3300 tons of 6 to 12-inch pipe for Parsippany-Troy Hills township in northern New Jersey, the contract being reported placed through J. R. Fusco, Montclair, N. J., with the Warren Foundry & Pipe Co.

Buffalo—Continued development of the newly found natural gas fields near here has proved a great stimulant to pipe sales. A Buffalo public service corporation has purchased 2700 tons of 8-inch pipe for a new line from Wayne to Dansville, N. Y., and several other major tonnages are up for closing in the near future.

Chicago—Closing of an award of 15,000 to 20,000 tons of steel line pipe is confirmed by the A. O. Smith Corp. but no details are given as to location or buyer. A few small sewage jobs requiring less than 100 tons and occasional carload releases to contractors comprise activity in cast pipe. Pipe interests are watching the award of 2500 tons, which closes Aug. 13 for the Calumet sewage disposal building program. Bids close Aug. 1 on 14,000 feet of 6 to 8-inch for St. Clair, Mo. Prices are unchanged at $42 to $44, delivered Chicago, for 6 to 24-inch.

Birmingham, Ala.,—Sales of pipe



The Morse Line includes High Speed and Carbon

DRILLS
REAMERS
CUTTERS
TAPS AND DIES
SCREW PLATES
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TAPER PINS
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Cut the cost of manufacture with these high production tools

SMALL tool waste, which may have gone unnoticed a few years ago, stands out like a sore thumb in these days of production economies.

MORSE Tools will keep your production costs down to bed rock. Their savings are the result of uniformly long life between sharpenings, uniformly high cutting ability.

MORSE

TWIST DRILL & MACHINE COMPANY

NEW BEDFORD, MASS., U.S.A.

are smaller though shipments are steady. Bids are out on several specifications of size with further negotiations under consideration. Concessions from list prices are still heard of. Pipe shop operations have declined slightly.

Steel Pipe Placed

25,922 tons, 12-inch line pipe, 15,470 tons to Republic Steel Corp., Youngstown, O.; 10,452 tons divided between National Tube Co., Pittsburgh, and Youngstown Sheet & Tube Co., Youngstown, O.

15,000 to 20,000 tons, line pipe for unnamed oil company, to A. O. Smith Corp., Milwaukee.

2500 tons, 35 miles of 8⅝-inch steel pipe for pipe line extension in east Texas for Standard Oil Co. of New Jersey, to unstated mill.

10,000 tons, 18-inch seamless pipe, foundations Westside Elevated highway, Twenty-second street to Thirty-eighth street, New York, to National Tube Co.

2000 tons, 54-inch pipe, Passaic Valley Water commission, Paterson, N. J., to Lock Joint Pipe Co., Ampere, N. J., the pipe to be made of concrete.

Cast Pipe Placed

3300 tons, 6 to 12-inch pipe, Parsippany-Troy Hills township, northern New Jersey, placed through J. R. Fusco, Montclair, N. J., general contractor, with Warren Pipe & Foundry Co.

1100 tons 6 to 12-inch class C water pipe, village of Fox Point, Wis., to R. D. Wood & Co., Philadelphia, at $36.75 per ton, all sizes. Other bids: Alabama Pipe & Foundry Co., $39.50, United States Pipe & Foundry Co. $40.40, Glamorgan Pipe & Foundry Co., $40.75.

326 tons, 4 to 12-inch Class B, improvement of Florence avenue, Huntington Park, Calif., to unnamed interest. General contract to Griffith Co., Los Angeles.

Steel Pipe Pending

8000 tons, 10¾-inch line pipe for oil company, bids opened soon.

2000 tons, 6 to 16-inch pipe, Hartford, Conn. Bids opened Aug. 10.

Unstated tonnage for gas line from Wayne field, N. Y., to Albany for Tri-State Gas & Electrical Corp., Elmira, Bigelow Natural Gas Co., Rochester and Lycoming Natural Gas Corp., Wellsboro, Pa.

Cast Pipe Pending

14,000 feet, 6 and 8-inch, for St. Clair, Mo., bids Aug. 11.

1800 feet, 36-inch, for Glen Ellyn, Ill.

1000 tons, 6 to 12-inch, Long Lake, N. Y., bids Aug. 20.

580 tons, 12 to 24-inch class B pipe, treasury department, Washington, bids Aug. 14.

400 tons, 6 to 12-inch, Thornwood, N. Y., bids opened Aug. 10.

300 tons, 6 and 8-inch pipe, of which former takes 265 tons, Richburg, N. Y., bids opened Aug. 10.

207 tons, 20-inch Class 250, San Bernardino, Calif. Bids Aug. 14.

200 tons, 6 to 8-inch, Racquette Lake, N. Y.

137 tons, 16-inch Class C, San Diego, Calif. Bids opened.

Wire

Sales Volume Increases at Chicago and Holds at Pittsburgh—Prices Show No Weakness

WIRE PRICES, PAGE 59

Chicago—Wire orders from a variety of outlets have increased the sales volume of district mills. Jobbing demand has been commensurate over the past week.. Increasing evidence appears that the last week of July was a low point for some months back. Sales of wire mesh also present a fairly satisfactory total and measure up comparably to the corresponding 1930 period. Prices on plain wire at 2.20c to the manufacturing trade and standard wire nails at $1.90 and $2 a keg are holding on current specifications.

The Swedish steamer ANNA recently delivered 650 tons of barbed wire and 30 tons of miscellaneous wire products to Montgomery Ward & Co., Chicago. Domestic producers of wire disclaim alarm, saying that similar shipments have been received sporadically in the past. Obviously, the foreign material is laid down cheaper than the domestic, but there is nothing to indicate that the trade is permanent.

Worcester, Mass.—Wire production shows little change. Sagging summer production is bringing this month what is expected to be the low point of the season, with little inquiry and small shipments. Building and road construction demand is fast disappearing.

New York—Wire nail sellers generally are adhering to $1.90, Pittsburgh, on such light tonnage as is being offered. Plain bright wire is 2.00c to 2.20c, Pittsburgh.

Pittsburgh — Wire specifications and shipments are fairly steady but lack improvement over the July volume. Some improvement in demand for fencing is looked for in the South in September but the outlook for manufacturers' wire continues dull. Little new business is appearing from jobbers since contracting was fairly complete but new prices are well observed on what orders are being received. The current market is $1.90 for wire nails to jobbers with quotations to the merchant trade 10 cents higher. Plain wire continues 2.20c and wire rods, $35.

Cleveland—Some fairly good orders for nails have been received at the new price of $1.90 per keg. The price of 2.20c also is holding for wire, and 3.20c for spring wire. A seasonal improvement is expected.

Canadian National Railways may abandon "box car red," finding aluminum paint more heat-resistant.

Bolt and Nut Demand Small; Some Shading Met

Bolts, Nuts, Rivets Prices, Page 59

Pittsburgh — Specifications for bolts, nuts and rivets continue at a slow rate with little change from activity of recent weeks. Operations average around 35 per cent. Prices are fairly steady although occasional shading is reported from the general market of 73 and 10 off for bolts and nuts. Large rivets continue 2.75c, Pittsburgh.

New York—Bolt and nut demand continues low with operations at eastern producing plants averaging 25 to 30 per cent. Railroads are buying practically nothing and jobbers' specifications are well behind on contracts. A fair amount of business continues to come out from fabricators. Prices are unchanged at 73 and 10 off list on bolts and nuts and 2.75c, Pittsburgh, on rivets.

Chicago—The movement of stock through jobbers is relatively good with bolt and nut plants receiving occasional carload orders. Mill operations are lower, averaging 20 to 25 per cent capacity. Quotations on bolts and nuts are unchanged at 73 and 10 off. Rivet prices are unchanged.

Fluorspar Market Quiet

Fluorspar Prices, Page 70

New York — Fluorspar demand continues dull, with little improvement indicated for a month to six weeks. Imported fluorspar, 85 and 5 per cent, continues easy at $18.50 to $19, tidewater, per gross ton, with the larger figure the more representative.

Looks for Improvement

Birmingham, Ala.—Back from a trip through Texas and other southwestern territory, L. E. Geohegan, vice president and general manager, Gulf States Steel Co., states he encountered better feeling and looks for early improvement in steel trade.

Raw Material Prices

Pig Iron

Per Gross Ton

FOUNDRY, No. 2

Chicago furnace	$17.50
Pittsburgh, dist. fur.	17.50
Pittsburgh, delivered	18.13 to 18.63
Valley furnace	17.00
Cleveland fur., local del.	17.00
Philadelphia, delivered	17.26
Virginia, furnace	17.75
Granite City, Ill., fur.	17.50
Buffalo, fur., local del.	17.00
Buffalo, del. Boston	21.41 to 21.91
Buff., all-rail, Brooklyn	19.91 to 20.91
Buff., all-rail Newark	18.28 to 18.78
Ala., Bir. fur., local del.	12.00 to 13.00
Alabama, del. Chicago	17.01
Alabama, del. St. Louis	15.42
Alabama, del. Cincinnati	14.69 to 15.19
Ala., Phila., dock del.	16.25
Ala., Balt., dock del.	16.00
Alabama, New York dock	16.50
Ala., Boston dock del.	16.75
Tenn., Bir. base, local del.	13.00
Tennessee, del. Cinn.	14.69 to 15.19
Montreal, delivered	23.50
Toronto, delivered	22.10

FOUNDRY, NO. 2X

Buffalo, fur., local del.	17.50
Buff., all-rail, Brooklyn	20.91 to 21.41
Buffalo, all-rail Newark	18.78 to 19.28
Buffalo, del. Boston	21.91 to 22.41
Virginia furnace	18.25
Eastern, del. Phila.	17.76

FOUNDRY, NO. 1X

Buffalo fur., local del.	18.50
Eastern, del. Phila.	18.26

MALLEABLE

Valley furnace	17.00
Cleveland fur., local del.	17.00
Pittsburgh dist. fur.	17.50
Pittsburgh, delivered	18.13 to 18.63
Chicago, furnace	17.50
Buffalo fur., local del.	17.50
Eastern Penna., delivered	18.26 to 20.41
Granite City, Ill., fur.	17.50
Montreal, delivered	24.00
Toronto, delivered	22.60

BASIC

Pittsburgh, district fur.	16.00 to 16.50
Pittsburgh, delivered	16.63 to 17.63
Eastern Penn., del.	16.75
Buffalo fur., local del.	16.50 to 17.00
Montreal, delivered	20.50
Valley, furnace	17.00

BESSEMER

Valley furnace	17.00
Pittsburgh, delivered	18.13 to 18.63
Pittsburgh, furnace	17.50

LOW PHOS.

Valley fur., standard	27.00
Philadelphia, standard	23.76 to 26.79
Copper-bear., E. Pa. fur.	21.50 to 23.00

GRAY FORGE

Valley furnace	16.50
Pittsburgh district fur.	17.00
Pittsburgh, delivered	17.63 to 18.13

CHARCOAL

Lake Superior, del. Chi.	27.04

SILVERY

Jackson County, O. fur., in per cents 6—$21; 7—$21.50; 8—$22; 9—$22.50; 10—$23; 11—$24; 12—$25; 13—$27.

BESSEMER FERROSILICON

Jackson County, O., fur., in per cents 10—$25; 11—$26; 12—$27; 13—$29; 14—$31; 15—$26; 16—$35.

Coke

Prices Per Net Tons

Beehive Ovens

Connellsville furnace	$2.40 to 2.50
Connellsville foundry	3.25 to 4.50
New River foundry	6.00
Wise county foundry	4.25 to 5.00
Wise county furnace	3.50 to 4.25

By-Product Foundry

Newark, N. J., del.	8.70 to 9.10
Chicago, ovens	7.50
New England, del.	10.50
St. Louis, del.	8.50
Birmingham, ovens	5.00
Indianapolis, del.	8.25
Ashland, Ky., ovens, Connell., basis	5.50
Portsmouth, O., ovens, Connell., basis	5.50
Buffalo, ovens	8.00 to 8.50
Detroit, ovens	8.00
Philadelphia, del.	8.75

Iron Ore

LAKE SUPERIOR ORE

Gross ton, 51½%, Lower Lake Ports

Old range bessemer	$4.80
Mesabi bessemer	4.65
Old range nonbessemer	4.65
Mesabi nonbessemer	4.50
High phosphorus	4.40

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic, 56-63%, contract	10.00
Copper-free low phos. 58-65%	nom.

FOREIGN ORE

Cents per units, alongside docks Atlantic ports

Foreign manganiferous ore, 45-55% iron, 6-10% manganese	10.00
North African low phosphorus	8.50
Swedish basic, 65%	9.00
Swedish low phos.	10.00
Spanish, North African basic, 50 to 60%	8.50 to 9.00
Newfoundland fdy., 55%	8.50
Tungsten, spot and future short ton unit, duty paid	$11.25 to $11.50
Chrome ore, 48% net ton c.i.f.	$21.50 to 22.00

Manganese Ore

Prices, not including duty, are cents per unit; cargo lots.

Caucasian, 52-55% (nom.)	26 to 28 cents
South African, 52%	26 to 28 cents
South African, 49-51%	25 to 26 cents
South African, 44-47%	24 cents
Indian, 48-50%	nom.
Brazilian, 46-48% (nom.)	22 cents

Refractories

FIRE CLAY BRICK

Per 1000 f.o.b. Works

First Quality

Pennsylvania, Ohio, Illinois, Kentucky, Missouri, Maryland	$40.00
Georgia, Alabama	40.00

Second Quality

Pennsylvania, Ohio, Illinois, Kentucky, Missouri, Maryland	35.00
Georgia, Alabama	30.00 to 35.00

SILICA BRICK

Pennsylvania	40.00
Joliet, Ill., East Chicago, Ind.	49.00
Birmingham, Ala.	50.00

MAGNESITE BRICK

Per Net Ton

9 x 4½ x 2½	$65.00

MAGNESITE

Dead burned grain, net ton, Chester, Pa., or Baltimore bases	40.00
Domes, Chewelah, Wash., base	22.00

CHROME BRICK

Net ton, Chester, Pa., and Balt. base, 9 x 4½ x 2½	45.00

Semifinished Steel

PRICES PER GROSS TON

BILLETS AND BLOOMS

4 x 4-inch base

Pittsburgh, open-hearth	$29.00
Pittsburgh, bessemer	29.00
Youngstown	29.00
Cleveland	29.00
Philadelphia	34.30
Chicago	30.00
Forging, Chicago	35.00 to 36.00
Forging, Pittsburgh	35.00 to 36.00
Forging, Philadelphia	39.30

SHEET BARS

Pittsburgh	29.00
Youngstown	29.00
Cleveland	29.00
Chicago	30.00

SLABS

Pittsburgh	29.00
Youngstown	29.00
Cleveland	29.00

WIRE RODS

Pittsburgh, Cleveland	35.00
Chicago	36.00

SKELP

All grades, Pittsburgh	1.60c

Ferroalloys

(In dollars, except Ferrochrome)

*Ferromanganese, 78-82%, tidewater, duty paid	$85.00
*Ferromanganese, del. Pittsburgh	89.79
Spiegeleisen, 19-20%, domestic fur. spot†	30.00
Ferrosilicon, 50 per cent, freight all., c. l.	83.50
Do, less carload	88.50
Do, 75 per cent	130.00 to 150.00
Ferrochrome, 66-70 chromium, 4-6 carbon, cts. lb., con., del.	11.00
Do, for spot delivery	11.50
Ferrotungsten, stand., lb. cont.	1.00 to 1.10
Ferrovanadium, 30-40 per cent, per lb., contained, on analysis	3.15 to 3.65
Ferro-carbon-titanium carload producers' plants, net ton	150.00
Do, one-ton to c. l.	170.00
Ferrophosphorus, per ton, carload 17-19 per cent, Rockdale, Tenn., basis (18 per cent)	91.00
Ferrophosphorus, electrolytic per ton carload, 23-25% f.o.b. Anniston, Ala., 24%	122.50
Ferromolybdenum, stand. 50-60 per cent, per lb.	$1.00
Cal. Molybdate, lb. cont.	.85

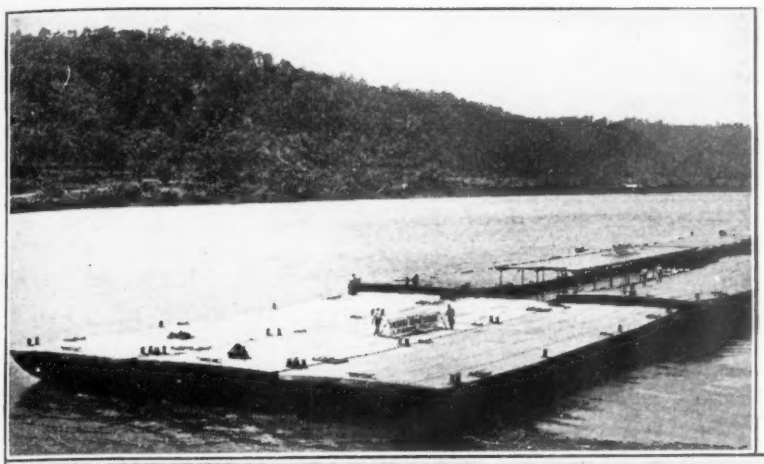
†Carloads. Differentials apply to quant. *To users of carloads to 500 tons annually. Differentials to large users.

Fluorspar

85 and 5 per cent grade

Washed gravel Kentucky and Illinois mines, per net ton	$13.00
Washed gravel, import duty paid east. tide, gross ton	18.50 to 19.00

STEEL BARGES



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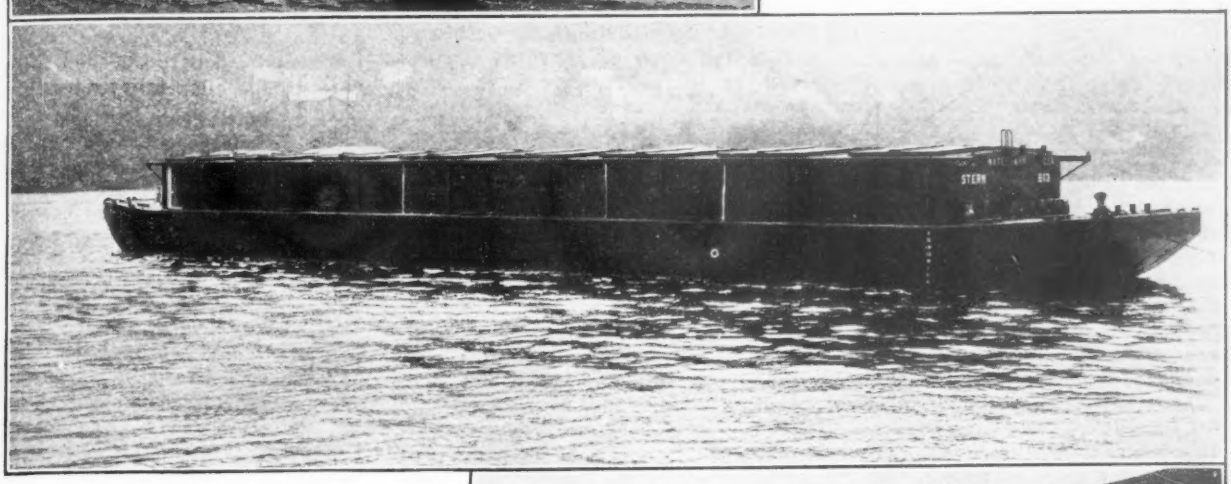


1500
STEEL BARGES
built at our OHIO RIVER YARD, Ambridge, Pa., in the last twenty-seven years.

AMERICAN BRIDGE COMPANY

Subsidiary of United States Steel Corporation

GENERAL OFFICES — 71 BROADWAY, NEW YORK, N. Y.

Contracting Offices in Principal Cities

Barge Department — Frick Building — Pittsburgh, Pa.

Pig Iron

Sales in Slightly Larger Volume in Lakes Districts—Forward Buying Still Lacking

PIG IRON PRICES, PAGE 70

Pittsburgh—Sales of pig iron show further decline. Recent business is the lightest of the year while shipments have been restricted by suspensions from several consumers. Some single carload orders are placed regularly, but the total tonnage is smaller than a month ago. The low rate of foundry operations is restricting forward buying. Business is too light to attract price concessions, No 2 foundry, malleable basic and bessemer usually being quoted $17, base, valley.

Boston—A Massachusetts melter purchased 2000 tons in the week. Other sales were small. A continuation of low prices is shown by these sales.

New York—Pig iron sales gained slightly over a week ago, totaling approximately 3500 tons. Inquiry continues light, and includes 300 tons of high silicon and No. 2 plain for the American Locomotive Co., Schenectady, N. Y. The Crane Co., Bridgeport, Conn., noted last week as inquiring for 1200 tons of foundry iron, has withdrawn its inquiry. Eastern foundry iron at $16 to $16.50, furnace, continues to more or less set the market in this district. Buffalo iron is $15 to $16, furnace, for shipment in this district, and southern iron is $11, furnace, or $16.50, New York docks.

Buffalo—Purchases of iron have been small during the past week. The district price is holding at $17, but local producers are going at least as low as $15.50 on eastern inquiry. Slightly less severe competition is reported from southern producers on eastern inquiry.

Cleveland—Sales are in larger volume. Furnace interests with headquarters in Cleveland booked approximately 11,500 tons in the past week. Shipments are slightly ahead of the July rate, and are expected to improve the latter part of the month. No. 2 foundry and malleable are holding at $17, base, furnace, for delivery in the Cleveland district and $16 to 17, lake furnace, for shipment in western Ohio and Indiana. Basic sales have been insufficient recently to clarify the market, but some northern Ohio producers venture the opinion that a large inquiry might develop quotations of $16, valley, though the last sales of basic were at $17.

Cincinnati—Sales of pig iron during the past week, chiefly by northern furnaces, totaled about 1500 tons. Competition on northern iron in this district is becoming more severe, rate advantages being discounted. Foundry activity is low.

Philadelphia—The market for pig iron is dull. Orders comprise chiefly carload lots. Prices are unchanged.

Chicago—Sales and shipments of pig iron manifest an upward tendency and are ahead of those of July for the comparable period, with inquiry developing from foundries heretofore out of the market. Several sizable tonnages are pending. Stovemakers have increased their melt, automotive foundry operations are steady. Report of a carload of low phosphorus iron received here from Port Colborne, Ont., is discredted. Some southern iron was placed in Michigan last week. Boat receipts are negligible. Current spot sales are good. Prices are steady.

St. Louis—The rate of pig iron shipments since Aug. 1 has continued on a parity with the July average, and slightly below that in June. Indications point to a moderate improvement in the last half of this month. Some foundries down for several weeks have resumed. A number of implement and stove plants will remain idle through August. Pig iron sales in this district in the past week did not exceed 1000 tons. Prices are unchanged.

Birmingham, Ala.—August business promises to be as good as that of July. Surplus stocks are increasing. Some melters are operating at 50 per cent or higher. Buying is done for only short periods. Prices are unchanged.

Ferroalloys Moving Slowly; Prices Holding

Ferroalloy Prices, Page 70

New York—Ferromanganese shipments are light, with the market unchanged at $85, duty paid, for material in carlots. Domestic spiegeleisen, 19 to 21 per cent, also is steady at $30, furnace, in carlots.

Pittsburgh—Ferroalloy shipments show no further decrease but generally lack improvement over the quiet July rate. Some upturn is looked for before the end of the month. Prices are unchanged but are receiving little test on new business. Ferromanganese continues $89.79 delivered with spiegeleisen $30, furnace. Ferrotungsten holds around $1.05.

Chicago—Spot sales of ferroalloys are fair but are infrequent. Releases on contracts drag generally behind specified delivery dates. One local carbuilder released four carloads of ferromanganese this week.

Iron Ore Stocks at Lower Lake Ports Reduced

Iron Ore Prices, Page 70

Cleveland—Interest in Lake Superior iron ore is restricted almost entirely to shipments on contracts, as no new business is in sight. Conditions will get no worse, according to sellers, and may improve slightly in the fall. Stocks at Lake Erie docks now are only 343,155 tons larger than a year ago, due to drastic curtailment in shipments. The Lake Superior Iron Ore association reports the following tonnages received at and shipped from Lake Erie docks to Aug. 1 this season:

	Receipts	Shipments	Dock balance Aug. 1 1931
Buffalo	380,500	11,173	3,374
Erie	155,364	160,024	56,542
Conneaut..	1,661,431	1,861,566	1,593,586
Ashtabula..	884,321	982,486	1,922,489
Fairport ..	403,244	452,215	350,878
Cleveland..	1,533,013	1,141,171	981,592
Lorain	708,743	345,143	118,695
Huron	154,742	154,719	321,796
Toledo	287,079	216,311	16,741
Total	6,168,437	5,324,808	5,365,693
1 yr. ago..	16,097,792	12,460,629	5,022,538

Receipts for the season at other than Lake Erie ports follow:

	Tons
Detroit	420,972
Indiana Harbor	605,588
Gary	1,255,782
South Chicago (Local)	1,373,853
South Chicago (Interior)	67,238
Sault Ste. Marie, Ont.	125,371
Hamilton, Ont.	75,646
Total	3,924,450
1 Year Ago	7,312,710

New J & L Card Is Out

Jones & Laughlin Steel Corp., Pittsburgh, will put into effect Aug. 15 new price lists on bars and small shapes, and on structural shapes, including junior beams. Principal changes in the former are a more complete range of flats and inclusion of several sizes not on the former list, and in the latter, size extras for special angles and extras for lengths more than 100 feet.

Scrap

Dead Level Reached with Few Sales and Unchanged Prices—Lack of Interest Universal

Chicago—Offerings of steel scrap, with few exceptions continue light. The Rock Island list, however, included about 40 cars. Several sales of heavy melting steel were made to Inland Steel Co. the latter part of last week at $8.50 though not of sufficient size nor consequence to revise the unchanged quotable spread of $8.50 to $9 a ton. Borings are moving into the Detroit and Buffalo districts but amounts demanded are greater than this district can produce, resulting in several unfilled orders. Prices are unchanged on listless trading.

A small tonnage of heavy melting steel was bought late last week by a consumer at Indiana Harbor, Ind., from a railroad list, at $8.50.

Boston—Conditions show little

Iron and Steel Scrap Prices

Corrected to Tuesday noon. Gross tons delivered to consumers, except where otherwise stated

HEAVY MELTING STEEL

Birmingham	7.50 to 8.50
Boston, dealers	4.50 to 5.00
Buffalo, No. 1	9.00 to 9.50
Buffalo, No. 2	7.50 to 8.00
Chicago	**8.50 to 9.00**
Cinn., deal.	7.50 to 8.00
Cleve., No. 1	8.50 to 9.00
Cleve., No. 2	8.00 to 8.25
Det., No. 1 deal.	7.50 to 8.00
Det., No. 2 deal.	**6.00 to 6.50**
E. Pa. del. mill	8.00 to 9.50
N. Y. deal. R. R.	5.00 to 6.50
N. Y. deal. No. 2	3.50 to 4.00
N. Y. deal. yd.	4.00 to 4.50
Pitts., No. 1	10.50 to 11.00
St. L. No. 1 sel	8.00 to 8.20
Federal, Ill.	7.75 to 8.25
Granite City, Ill.	7.00 to 7.50
Valleys, No. 1	10.50 to 11.00

COMPRESSED SHEETS

Buffalo, dealers	7.50 to 8.00
Chicago	7.00 to 7.50
Cleveland	8.00 to 8.50
Detroit, dealers	7.00 to 7.50
E. Pa. new mat.	**8.00 to 9.00**
Pittsburgh	10.50 to 11.00
Valleys	10.00 to 10.50

BUNDLED SHEETS

Buffalo	5.50 to 6.00
Cinci., deal.	6.75 to 7.25
Cleveland	6.50 to 7.00
Eastern Pa.	6.50 to 7.00
Pittsburgh	8.50 to 9.00
St. Louis	5.00 to 5.50

SHEET CLIPPINGS LOOSE

Chicago	4.00 to 4.50
Cincinnati	4.00 to 4.50
Detroit, dealers	4.00 to 4.50
St. Louis	5.00 to 5.50

STEEL RAILS SHORT

Birmingham	10.50 to 11.00
Boston, dealers	3.00 to 4.50
Buffalo	12.00 to 12.50
Chicago (3 ft.)	10.00 to 10.50
Chicago (2 ft.)	10.75 to 11.25
Cinci., deal.	**13.00 to 13.50**
Detroit, deal.	11.00 to 11.50
Pitts. (open-hearth, 3 ft. and less)	**12.50 to 13.00**
St. Louis	**12.00 to 12.50**

STOVE PLATE

Birmingham	7.00 to 7.50
Boston, con.	5.00 to 5.50
Buffalo	7.75 to 8.00
Chicago, net	7.00 to 7.50
Cinci., deal. net	**4.50 to 5.00**
Det., net deal.	4.00 to 4.50
Eastern Pa.	**7.50 to 8.00**
N. Y., deal. mill	4.50 to 4.75
St. Louis	**7.00 to 7.50**

COUPLERS, SPRINGS

Buffalo	11.25 to 11.75
Chicago	9.75 to 10.25
Eastern Pa.	**13.00**
Pittsburgh	12.75 to 13.25
St. Louis	8.50 to 9.00

ANGLE BARS—STEEL

Chicago	9.25 to 9.75
St. Louis	8.00 to 8.50

LOW PHOSPHORUS

Buffalo, billets and bloom crops	**12.75 to 13.25**
Cleveland bil. and bloom crops	**12.00 to 12.50**
Eastern Pa.	**13.50 to 14.00**
Pittsburgh billet bloom crops	**14.50 to 15.00**
Pitts. sheet bar crops	**13.50 to 14.00**

FROGS, SWITCHES

Chicago	8.50 to 9.00
St. Louis	8.75 to 9.25

SHOVELING STEEL

Chicago	8.50 to 9.00
Cleveland	6.50 to 7.00
St. Louis	7.75 to 8.25

RAILROAD WROUGHT

Birmingham	**8.00 to 8.50**
Boston, dealers	8.00 to 8.50
Buffalo, No. 1	7.00 to 7.50
Buffalo, No. 2	9.00 to 9.50
Chicago, No. 1	**8.25 to 8.70**
Chicago, No. 2	**8.50 to 9.00**
Cinci., No. 2	7.50 to 8.00
Eastern Pa.	9.50 to 10.00
N. Y., No. 1, deal.	**9.00 to 9.50**
Pitts., No. 2	10.50 to 11.00
St. Louis, No. 1	5.00 to 5.50
St. Louis, No. 2	7.75 to 8.25

SPECIFICATION PIPE

Boston	**5.00 to 5.25**
Eastern Pa.	10.00 to 10.50
N. Y., deal.	5.50 to 6.00

BUSHELING

Buffalo, No. 1	7.50 to 8.00
Chicago, No. 1	6.75 to 7.25
Cinn., No. 1 dl.	6.00 to 6.50
Cinn., No. 2	3.50 to 4.00
Cleve., No. 2	6.25 to 6.75
Det., No. 1 new deal.	5.50 to 6.00
St. L., No. 1	6.00 to 6.50
Val. new No. 1	9.50 to 10.00

MACHINE TURNINGS

Birmingham	3.50 to 4.50
Boston, dealers	1.50 to 1.75
Buffalo	4.75 to 5.00
Chicago	3.75 to 4.25
Cinn., deal.	3.75 to 4.25
Cleveland	5.00 to 5.50
Detroit	4.00 to 4.50
Eastern Pa.	5.00 to 6.00
N. Y., deal.	2.00 to 2.50
Pittsburgh	7.25 to 7.75
St. Louis	3.00 to 3.50
Valleys	8.00 to 8.25

BORINGS AND TURNINGS
For Blast Furnace Use

Boston	1.50 to 1.75
Buffalo	5.75 to 6.25
Cinn., deal.	4.50 to 5.00
Cleveland	6.50 to 7.00
Detroit, deal.	4.75 to 5.25
Eastern Pa.	5.50
N. Y., deal.	2.00 to 2.50
Pittsburgh	7.50 to 8.00

CAST IRON BORINGS

Birming., chem.	12.50 to 13.00
Birming., plain	3.50 to 4.50
Boston, chem.	7.00 to 7.25
Boston, deal.	1.50 to 1.75
Buffalo	5.75 to 6.25
Chicago	3.75 to 4.25
Cinn., deal.	3.75 to 4.25
Cleveland	6.50 to 7.00
Detroit, deal.	4.75 to 5.25
Eastern Pa.	5.00 to 6.00
E. Pa., chem.	10.00 to 10.50
N. Y., deal.	2.00 to 2.50
Pittsburgh	7.50 to 8.00
St. Louis	5.50 to 6.00

PIPE AND FLUES

Cinn., deal.	6.00 to 6.50

RAILROAD GRATE BARS

Buffalo	6.50 to 7.00
Chicago, net	5.75 to 6.25
Cincinnati	**5.50 to 6.00**
Eastern Pa.	7.50 to 8.00
N. Y., deal.	5.00 to 5.50
St. Louis	6.00 to 6.50

FORGE FLASHINGS

Boston, deal.	5.00 to 5.25
Buffalo	7.50 to 8.00
Cleve. ov. 10 in.	7.00 to 7.50
Detroit	6.00 to 6.50

FORGE SCRAP

Boston, del.	5.00 to 5.25
Chicago	11.50 to 12.00
Eastern Pa.	9.00 to 10.00

ARCH BARS, TRANSOMS

Chicago, net	10.50 to 11.00
St. Louis	8.25 to 8.75

AXLE TURNINGS

Boston, deal.	6.75 to 7.00
Buffalo	7.50 to 8.00
Chi., steelworks	7.50 to 8.00
Cleveland	6.75 to 7.00
Eastern Pa.	8.00 to 9.00
Pittsburgh	9.00 to 9.50
St. Louis	6.50 to 7.00

STEEL CAR AXLES

Birmingham	12.00 to 12.50
Boston, ship. pt.	11.00 to 12.00
Buffalo	14.50 to 15.00
Chicago	14.00 to 14.55
Eastern Pa.	18.50 to 19.50
St. Louis	11.50 to 12.00

SHAFTING

Bos., ship. pt.	10.00 to 10.50
Chicago	9.55 to 10.10
N. Y., deal.	12.00 to 13.00
St. Louis	9.00 to 9.50
E. Penna.	18.00

CAR WHEELS

Birming., iron	8.00 to 9.00
Boston, iron	14.00 to 14.50
Buffalo, iron	10.50 to 11.00
Buffalo, steel	10.75 to 11.25
Chicago, iron	10.00 to 10.50
Chi. rolled steel	10.00 to 10.50
Cincinnati, iron	10.50 to 11.00
E. Pa. steel	10.50 to 11.00
E. Pa. iron	12.50 to 13.00
Pitts. iron	11.00 to 11.50
Pitts., steel	12.75 to 13.25
St. Louis, iron	7.25 to 7.75
St. Louis, steel	9.25 to 9.75

NO. 1 CAST SCRAP

Birmingham	9.00 to 10.00
Buffalo (mach.)	9.00 to 10.00
Boston, textile	10.00 to 10.50
Chicago, mach.	9.80 to 10.35
Chi., railroad	8.70 to 9.25
Chicago, agri.	8.40 to 8.95
Cinn., mach. cup., gross	12.25 to 12.75
Cleve. cupola	10.00 to 10.50
Det., net deal.	8.00 to 8.50
E. Pa. cupola	**12.50 to 13.00**
N. Y. cup. deal.	7.00 to 7.50
N. Y., del. local foundries	12.00
Pitts., cupola	10.00 to 10.50
San Fran., del.	13.50 to 14.00
Seattle	5.00 to 7.50
St. L. No. 1 ma.	8.50 to 9.00
St. L. No. 1	7.50 to 8.00

HEAVY CAST

Boston	10.50 to 11.00
Bos. mach. cast.	11.50 to 12.50
Buffalo, break	**6.50 to 7.00**
Cleve., break	6.00 to 6.50
Detroit, auto, net deal.	10.50 to 11.00
Det., break., dl.	5.50 to 6.00
Eastern Pa.	10.00 to 10.50
N. Y. No. 1 dl.	7.50 to 8.00
N. Y., break. dl.	7.00 to 7.50
Pittsburgh	8.00 to 8.50

MALLEABLE

Boston R. R.	13.00 to 13.50
Buffalo	10.00 to 10.50
Chicago, agri.	7.50 to 8.00
Chicago, R. R.	8.50 to 9.00
Cinci., R. R. Del.	11.00 to 11.50
Cinci., agri. del.	10.00 to 10.50
Cleveland, rail	10.00 to 10.50
Det. auto deal.	10.50 to 11.00
St Louis, rail	7.50 to 8.00

RAILS FOR ROLLING
5 feet and over

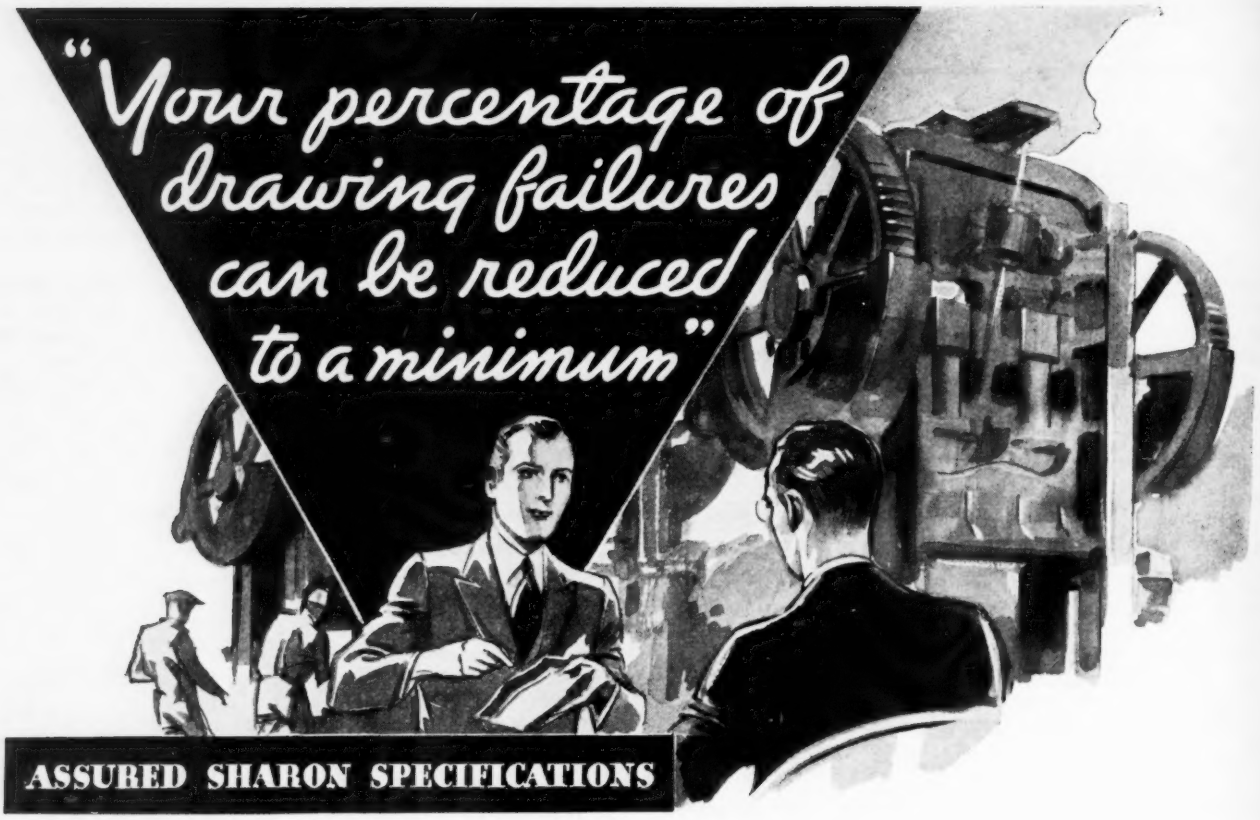
Birmingham	10.25 to 11.00
Boston	7.50 to 8.00
Buffalo	10.00 to 10.50
Chicago	10.50 to 11.00
Eastern Pa.	11.50 to 12.00
New York	7.00 to 7.50
St. Louis	10.50 to 11.00

LOCOMOTIVE TIRES

Chicago, cut	11.50 to 12.00
St. L., No. 1	9.50 to 10.00

LOW PHOS. PUNCHINGS

Chicago	10.75 to 11.25
Buffalo	12.50 to 13.00
Eastern Pa.	13.00 to 14.00
Pittsburgh	13.50 to 14.00



—AND PROVED IT BY DEVELOPING A NEW STEEL TO MEET THE SEVERE DEMANDS

A steel sheet that was showing too great a deficiency in drawing quality was the problem a manufacturer of a large electric appliance was facing. "Sharon Specifications"—Sharon's comprehensive engineering service went to work on the case to search out this costly trouble. ▼ Here's what followed: a careful study of the product requirements and the manufacturer's production methods—metallurgical research and tests on the steel being used—development in Sharon Mills of a steel of proper characteristics, chemically and physically, to meet all the exacting demands of fabrication. Consistent uniformity in quality, with reduction of failures to a minimum, was the manufacturer's gain in this instance. ▼ Give your steel sheet or strip product a "Sharon Specifications" examination. It may mean improved quality, plus savings in production. It will certainly insure the proper steel for the purpose. Write for further details about this valuable service.

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Strip Steels
Hot and Cold Rolled
—
"Nevastain"
Stainless Steels
—
Steel Sheets

SAVE WITH STEEL

change in steel and iron scrap. Dealers and brokers report a lack of interest from practically every source. Prices are unchanged and untested. Sellers are reluctant to dispose of any materials at prevailing prices.

New York—Buying of skeleton steel for Harrisburg, Pa., has resulted in a 50-cent advance in this grade, the dealers' market now holding at $3, f.o.b. New York. A recent development has been the purchase of No. 1 steel at Newark for shipment by barge to Buffalo. The prices paid have been around $6.50 on barge at Newark. The dealers' usual buying price for No. 1 steel for shipment to eastern Pennsylvania continues $9, delivered. General buying is light.

Philadelphia—A fair tonnage of heavy breakable cast scrap was bought recently for consumers at Harrisburg and Phoenixville, Pa., at $10.50, delivered. Chemical borings and No. 2 heavy melting steel are reduced 50 cents per ton.

Buffalo—Scrap markets are dormant, with dealers storing material rather than sell at mill offers. Prices are nominally unchanged although dealers contend consumers can not buy tonnage at current quotations.

Pittsburgh—Prices of steel and iron scrap are holding in a quiet market. Heavy melting steel on the Pennsylvania railroad list is understood to have brought $11.25, about 25 cents more than a month ago. Light demand is matched by a lack of surplus scrap, leaving most quotations nominally unchanged, heavy melting steel continuing $10.50 to $11.

Cleveland — Extreme dullness marks the situation in steel and iron scrap. Cleveland consumers are allowing no deliveries, except blast furnace scrap for one consumer. Mills in the valleys are also tightening on shipments as operations are restricted. Prices are unchanged and almost wholly nominal in absence of selling.

Detroit—Borings and turnings are up 25 to 50 cents a ton as available borings do not keep pace with demand. Old No. 2 busheling is up 50 cents a ton. Scrap lists continue small except the recent Chrysler offerings.

Cincinnati—Little change has been noted in demand for iron and steel scrap. Prices are nominal and unchanged, with little buying interest. Quotations may undergo a test within a few days with bidding on railroad scrap lists.

St. Louis—The trend of iron and steel scrap prices is sharply downward, latest revisions bringing quotations to the lowest point on the present decline or within the memory of the oldest dealers. Cuts of 25 cents to $1.25 per ton were made on about 18 specific items, and on some grades which were not disturbed. quotations are admittedly nominal, no transactions having been made to test actual values.

Birmingham, Ala.—While prices have been readjusted downward, no change in conditions of the entire market is noted. Demand is for immediate requirements and purchasing is in as small lots as possible.

Canadian Scrap

Dealers' Buying Prices

MONTREAL

Per Gross Ton

Iron axle	$11.00
Steel axles	10.00
Car wheels	8.00
Stove plate	8.00
Wrought pipe	2.00
Turnings	2.00
Heavy melting steel	6.00

TORONTO

Steel axles	7.00
Iron axles	7.00
Heavy melting steel	7.00
Turnings	2.00
No. 1 mach. cast (net)	9.00
Malleable (net)	7.00

May Base Scrap Price on Market for Steel Bars

A proposal to stabilize the price of scrap iron and steel on the basis of steel bars is being considered by the purchasing department of a leading steel mill in California, in co-operation with the Pacific Coast chapter of the Institute of Scrap Iron and Steel, New York.

The proposal contemplates the fixing of the price of "yard scrap" at a percentage of the market price for steel bars. No. 1 heavy melting steel would be priced at a fixed differential above the price of yard scrap.

The price would be f.o.b. cars at dealers' yards, as of the time the order is issued. It is understood that the proposal was submitted by the consumer at a meeting of the Pacific Coast chapter held at Oakland, Calif., July 28, with the purpose of securing the advice and co-operation of the scrap iron dealers who are members of the institute.

Chrome Ore Leads Imports

Philadelphia—The following imports were received here during the week ended Aug. 8: 3054 tons chrome ore, Cuba; 38 tons pig iron, Norway; 10 tons steel bars, France; structural shapes 268 tons from Belgium and 58 tons from Germany.

Coke

Demand Continues to Reflect Low Rate of Furnace and Foundry Operations

COKE PRICES, PAGE 70

Pittsburgh — Activity in the market for beehive coke is restricted by reduced foundry and furnace operations. Shipments generally are unchanged, with prices holding on standard grades, except for occasional distress offerings.

New York—With foundry operations in this district averaging only 20 to 25 per cent, coke sellers believe it will be several weeks before business approaches fair volume. Prices are unchanged at $2 to $2.25, Connellsville, Pa., for beehive furnace coke, and $3 to $3.25 for standard foundry coke. Premium brands of beehive foundry are $4.50, Latrobe, Pa., or $4.70, Connellsville. By-product coke is $8.70 to $9.10, Newark, N. J.; $10.50, New England; and $8.75, Philadelphia.

Cincinnati—Without any notable increase in tonnage, urgent calls for shipment of by-product foundry coke have been received, indicating how consumers have permitted inventories to fall.

Boston—The market for coke remains dull, with prices unchanged. Some foundries defer shipments.

Chicago—The market for by-product foundry coke is slow and prices are unchanged.

St. Louis—Production of by-product coke continues curtailed but oven stocks are increasing. Shipments do not show improvement over the rate in July in which month the movement was the smallest of the year.

Birmingham, Ala. — By-product coke ovens in this district are being operated at 75 per cent in response to a fairly active demand. Little coke is being purchased for more than a month ahead.

Pacific Coast

Sales Dull but Total Tonnages Close to Last Year—Dirigible Hangar Requiring 8000 Tons Is Pending—Prices Hold Firmly in Most Lines—New Projects Promise Further Tonnage

San Francisco—(*By Air Mail*)—Demand for iron and steel products on the Pacific Coast remains quiet and awards were below the weekly average of the year. The feature of the market this week was the call for bids, to be opened Sept. 23, for the new navy dirigible hangar at Sunnyvale, Calif., requiring close to 8000 tons of structural steel. Prices remain unchanged but weak.

Bars, Plates and Shapes

Among the larger reinforcing steel bar tonnages awarded were 240 tons for a pier at the foot of Van Ness avenue, San Francisco, placed with the Soule Steel Co. and 130 tons for a school in Visalia, Calif., secured by Kyle & Co. Gunn, Carle & Co. took 110 tons for a high school in San Francisco. Awards this week aggregated 1010 tons, bringing the aggregate for the year to 42,999 tons as compared with 36,571 tons for the corresponding period in 1930. Bids were opened on 250 tons for a mole in Los Angeles and on 227 tons for the R. K. O. studio in Hollywood. The state of California opened bids on two bridge projects calling for 348 tons. Out-of-stock prices in the San Francisco section remain unchanged at 2.60c, base, on carload lots, while 2.50c is being maintained in the Los Angeles district. Merchant bar material continues to move in small lots only and 2.10c, c.i.f. appears general. Some foreign material has recently been purchased by jobbing interests.

Plate business continues to be confined to small, unimportant lots. Awards so far this year total 109,962 tons, compared with 29,950 tons for the same period a year ago. Bids are expected to be called for soon for 7000 tons for two cruisers to be built at the Mare Island navy yard. Prices range between 1.90c and 2.00c, c.i.f.

Only three shape awards of importance were reported placed this week. McClintic-Marshall Corp. booked an additional 250 tons for the Cord building, Los Angeles. The Herrick Iron Works secured 200 tons for a high school in San Francisco. Awards aggregated 992 tons and brought the total for the year to 68,574 tons as compared with 69,268 tons for the corresponding period in 1930. This is the first time since the middle of March that the awards for the year have not exceeded the total for the corresponding period last year. Bids have been opened on 425 tons for a bridge over Spanish creek in Plumas county, Calif., and on 220 tons for a bridge over Pixley creek in Monterey county, Calif. Awards are expected to be made within a few days on 400 tons for a plant in Glendale, Calif., for the Curtiss Mfg. Co. Plans are being prepared on a bascule bridge at Park street, Oakland, involving 2000 tons. Plain shapes are quoted at 2.05c to 2.15c, c.i.f.

Other Finished Material

Unnamed interests booked 326 tons of 4 to 12-inch cast iron pipe for the improvement of Florence avenue, Huntington Park, Calif. This brought the aggregate for the year to 46,277 tons, compared with 51,702 tons for the same period a year ago. Inglewood and San Bernardino, Calif., will open bids Aug. 10 and Aug. 14, respectively, for 100 tons of 8 to 12-inch and on 207 tons of 20-inch pipe. Bids were opened on 137 tons of 16-inch pipe for San Diego.

Movement of sheet material continues restricted to small lots for immediate shipment. Prices on No. 10 gage blue annealed sheets are now 2.33c, c.i.f. Quotations on No. 24 gage hot-rolled annealed sheets and on No. 24 gage galvanized sheets now appear to be firm at 2.88c and 3.38c, c.i.f., respectively.

Coast Pig Iron Prices

Utah basic	$22.00 to 24.00
Utah foundry	22.00 to 24.00
*German	24.25
*Indian	22.00 to 24.00

*C.i.f. duty paid.

Grants Aluminum Drawback

Washington—Treasury department has allowed a drawback on cast aluminum products manufactured by the Wagner Mfg. Co., Sidney, O., with the use of imported crude aluminum ingots.

Machinery Exports in June Showed Notable Increase

Washington—A decided upward turn occurred in exports of industrial machinery during the month of June, according to the department of commerce. The June total of $15,668,000 was more than $3,000,000 in excess of the total for May, in fact it was above that of any month since July, 1930.

Although inevitable fluctuations to which this trade is subject preclude the placing of too much emphasis on monthly returns as indicators of yearly trends, this substantial increase at least is encouraging, in view of the fact that levels between $12,000,000 and $12,700,000 had persisted for several months.

The most noteworthy feature was the sharp increase in exports of metalworking machinery, whose June total of $5,280,000 is approximately 72 per cent ahead of any other recent month and 43 per cent above the corresponding period of 1930. The most surprising fact of all is that this figure actually is 55 per cent higher than the average monthly figure for the "boom year" of 1929.

German Machinery Output Declined in First Half

The first half of 1931 brought a further decline in German machinery building as compared with the first half of 1930. Domestic orders were 39 per cent less than during the first half of 1930 and 16 per cent less than during the second half of 1930, while foreign orders declined by 26 per cent and 12 per cent respectively.

Following a temporary improvement in the spring, the degree of plant activity again declined and on the average for the first half of 1931 amounted to only 43.5 per cent of capacity as against 55 per cent during the first six months of 1930. The average weekly working time during the first half of 1930 amounted to approximately 42 hours, as compared with about 45 hours in the corresponding period of 1930.

Union Drawn Steel Co., Beaver Falls, Pa., subsidiary of Republic Steel Corp., Youngstown, O., has filed claim at Washington for $63,919, alleged erroneous tax assessment for 1919.

Steel, Wrought and Cast Iron Pipe, and Tubing

Welded Iron, Steel Pipe

Base Price $200 Ton

Base Discounts on steel pipe, Pittsburgh and Lorain, O., to jobbers in carloads. Indiana Harbor, Ind., and Evanston, Ill., 2 points less. Chicago del., 2½ points less. Wrought pipe, Pittsburgh base.

BUTT WELD

	Steel			Iron	
In.	Blk.	Gal.	In.	Blk.	Gal.
½	58	44½	½	23	5
¾	62	50½	¾	28	11
1—3	64	52½	1—1¼	31	15
			1½—2	35	18

LAP WELD

2	57	45½	2	23	9
2½—6	61	49½	2½—3½	28	13
7—8	58	45½	4—6	30	17
9—10	56	43½	7—8	29	16
11—12	55	42½	9—12	26	11

BUTT WELD

Extra strong, plain ends

½	55	44½	¼ & ⅜	+13	+48
¾	60	49½	½	23	7
1—1½	62	51½	¾	28	12
2—3	63	52½	1—2	34	18

LAP WELD

Extra strong, plain ends

2	55	44½	2	29	13
2½—4	59	48½	2½—4	34	20
4½—6	58	47½	4½—6	33	19
7—8	54	41½	7—8	31	17
9—10	47	34½	9—12	21	8
11—12	46	33½			

To large jobbers these discounts on steel pipe increased on black by 1 point and two discounts of 5 per cent; on galvanized by 1½ points with two 5 per cents. Direct mill shipments, base, 5 and 2½. On iron pipe large jobbers obtain additional discount of 1 point with 5 and 2½ per cent on black and galvanized.

BOILER TUBES

Carload Discounts, Lap Welded Steel		f. o. b. Pittsburgh Charcoal Iron	
2—2¼	38	1¾	8
2½—2¾	46	2—2¼	13
3	52	2½—2¾	16
3¼—3¾	54	3	17
4	57	3¾—3½	18
4½—6	46	4	20
1½	1	4½	21

On lots of a carload or more, above base discounts subject to preferential of two 5 per cent discounts on steel and 10 per cent on charcoal iron. Smaller quantities subject to following modifications from base discounts.

Lap Welded Steel—Under 10,000 pounds, 6 points under base and one 5 per cent; on 10,000 pounds to carload, 4 points under base and one 5 per cent; on 10,000 pounds to carload, 4 points under base and two 5 per cents. Charcoal Iron—under 10,000 pounds, 2 points under base; on 10,000 pounds to carload, base and one 5 per cent.

STANDARD COMMERCIAL SEAMLESS BOILER TUBES

COLD DRAWN

1 inch	61	3	46
1¼—1½	53	3¼—3½	48
1¾	37	4	51
2—2¼	32	4½, 5, 6	40
2½—2¾	40		

HOT ROLLED

2—2¼	38	3¼—3½	54
2½—2¾	46	4	57
3	52	4½, 5, 6	46

Subject to 5 per cent supplementary discount for carload lots. On less than 10,000 pounds, base discount reduced 6 points. On 10,000 pounds to carload, base discount reduced 4 points and one 5 per cent allowed. No extra for lengths up to and including 24 feet. Sizes smaller than 1 inch and lighter than standard gage to be held at mechanical tubes list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Seamless Tubing

Cold drawn; f.o.b. mill discounts

Random lengths over 5 ft. 55%
Selected lengths, 1—18 ft. 53%

Cast Iron Water Pipe

Class B Pipe—Per Net Ton

Six-inch and over, Bir. ....$35.00 to 36.00
Four-inch, Birmingham .... 39.00 to 40.00
Four-inch, Chicago ..... 45.00 to 47.00
Six to 24-inch, Chicago..... 42.00 to 44.00
Six-inch and over, N. Y..... 32.50 to 34.50
Four-inch, New York ..... 38.50 to 39.50
Stand. fittings, Bir. base.... $100.00

Six to 24-inch, base; over 24-inch plus $20; 4-inch, plus $10; 3-inch plus $20; gas pipe fittings, $5 higher. Class A pipe $4 higher than Class B.

Warehouse Quotations at Leading Centers, in Cents Per Pound

(All Philadelphia prices subject to quantity differentials except reinforcing and Swedish bars)

STEEL BARS

Baltimore	3.00c
Boston	3.265c
Buffalo	3.00c
Chattanooga	3.00c
Chicago	2.75c
Cincinnati	3.00c
Cleveland	2.75c
Detroit	2.85c
Houston	3.00c
Los Ang.	3.40c
New York‡(d)	3.10c
Philadelphia	2.60c
Pittsburgh	2.60c
Portland	3.15c
San Frans.	2.40c
Seattle	3.00c
St. Louis	3.00c
St. Paul	3.00c
Tulsa	3.50c

IRON BARS

Baltimore	3.25c
Boston	3.265c
Buffalo	3.15c
Chattanooga	3.00c
Chicago	2.75c
Cincinnati	3.00c
Detroit	2.85c
New York‡(d)	3.10c
Philadelphia	2.60c
St. Louis	3.00c
Tulsa	3.50c

REINFORC. BARS

Baltimore	2.50c-3.31c
Boston	3.265c
Buffalo	2.95c
Chattanooga	3.00c
Cincinnati	3.00c
Cleveland	2.10-2.25c
Detroit	2.85c
Houston	3.00c
Los Ang. cl.	2.40c
Los Ang. lcl.	2.70c
New York	2.65c-3.10c
Phila.	2.40c-3.00c
Pittsburgh	2.60c
San Fran. cl.	2.30c
San Fran. lcl.	2.50c
Seattle	3.00c
St. Louis	3.15c
Tulsa	3.50c
Young.	2.30c-2.60c

SHAPES

Baltimore	3.00c
Boston	3.365c
Buffalo	3.25c
Chattanooga	3.20c
Chicago	3.00c
Cincinnati	3.25c
Cleveland	2.95c
Detroit	3.10c
Houston	3.25c
Los Ang.	3.40c
New York(d)	3.10c
Philadelphia	2.50c
Pittsburgh	2.85c
Portland	3.15c
San Fran.	2.40c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.10c
Tulsa	3.75c

PLATES

Baltimore	3.00c
Boston	2.365c
Buffalo	3.25c
Chattanooga	3.20c
Chicago	3.00c
Cincinnati	3.25c
Cleveland, ¼-in. and thicker	2.95c
Clev., 3/16-in.	3.20c
Detroit	3.10c
Det., 3/16-in.	3.10c
Houston	3.00c
Los Angeles	3.40c
New York(d)	3.30c
Philadelphia	2.50c
Phila. floor	5.10c
Pittsburgh	2.85c
Portland	3.15c
San Fran.	2.40c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.10c
Tulsa	3.75c

NO. 10 BLUE

Baltimore	3.25c
Boston	3.915c
Buffalo	3.50c
Chattanooga	3.50c
Chicago	3.20c
Cincinnati	3.30c
Cleveland	3.00c
Detroit	3.35c
Houston	3.90c
Los Ang.	3.95c
N. Y. (d)	3.00c-3.40c
Portland	4.00c
Phila.*† (e)	3.05c
Pitts.**	2.60c to 2.85c
San Fran.	3.65c
Seattle	3.75c
St. Louis	3.45c
St. Paul	3.40c
Tulsa	3.95c

NO. 24 BLACK

Balt.*†	3.50c
Boston	4.70c
Buffalo	3.70c
Chattanooga	3.65c
Chicago	3.55c
Cincinnati	3.75c
Cleveland	3.60c
Detroit	3.50c
Los Ang.	4.70c
New York	3.50c-3.65c
Phila.*†(e)	3.55c
Pitts.**	3.40c
Portland	4.50c
San Fran.	4.15c
Seattle	4.25c
St. Louis	3.80c
St. Paul	3.545c
Tulsa	4.75c

NO. 24 GAL. SHEETS

Balt.*†	4.00c
Boston	5.45c
Buffalo	4.10c
Chattanooga	3.95c
Chicago	4.10c
Cincinnati	4.25c
Cleveland	4.00c
Detroit	4.00c
Houston	5.40c
Los. Ang.	5.10c
New York	4.00c-4.10c
Phila.*† (e)	4.00c
Pitts.**	4.00c
Portland	5.00c
San Fran.	4.65c
Seattle	4.75c
St. Louis	4.35c
St. Paul	4.23c
Tulsa	5.10c

BANDS

Baltimore	3.50c
Boston	4.015c-5.00c
Buffalo	3.35c
Chattanooga	3.20c
Chicago	2.95c
Cincinnati	3.20c
Cleveland	3.00c
Det. 3/16-in. & lighter	3.15c
Houston	3.65c
Los Ang.	4.30c
New York(d)	3.40c
Philadelphia	2.90c
Pittsburgh	2.95c
Portland	3.50c
San Fran.	3.75c
Seattle	3.50c
St. Paul	3.75c
Tulsa	3.70c

HOOPS

Baltimore	3.50c
Boston	5.50c-6.00c
Buffalo	3.90c
Chicago	3.50c
Cincinnati	3.75c
Cleveland	3.55c
Det. No. 14 & lighter	3.65c
New York	3.75c
Philadelphia	3.15c
Pittsburgh	3.60c
Seattle	4.90c
St. Paul	3.75c

COLD FIN. STEEL

Rounds & Hexagons

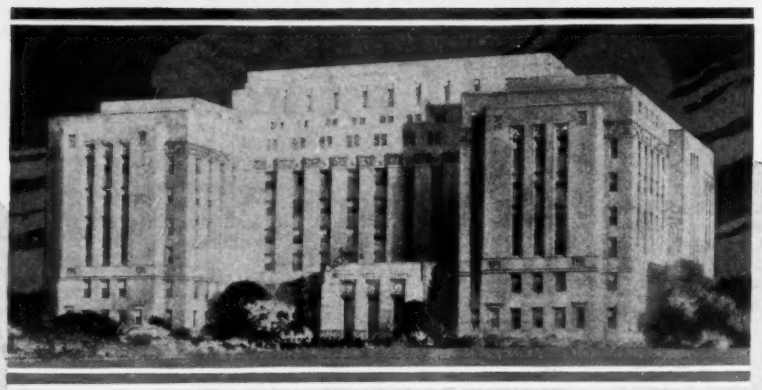
Baltimore (c)	3.30c
Boston	3.50c
Buffalo	3.15c
Chattanooga*	3.75c
Chicago	3.10c
Cincinnati	3.50c
Cleveland	3.10c
Detroit	3.40c
Los Ang. (a)	4.50c
New York	3.40c
Philadelphia*	3.40c
Pittsburgh	3.10c
Portland (a)	4.50c
San Fran.(a)	4.25c
Seattle (a)	4.50c
St. Paul (a)	3.85c
St. Louis	3.35c
Tulsa	4.65c

Flats and squares 50c extra, except Tulsa, where 5.14c is quoted. (a) Rounds, hex. only.

COLD ROLL. STRIP

Boston 0.100 in., 500 lb. lots	5.30c
Buffalo	5.65c
Chicago (soft) (b)	5.65c
Cincinnati	5.80c
Clev. (b)	5.55c
Detroit	5.40c
Phila. (c)	4.55c
New York	4.55c

(b) Net base straightening, cutting, boxing 1 ton or more.
(c) Plus mill, size and quantity extras.
(d) Minus quant. diff.
(e) New mill classif.
‡Domestic bars.
*Plus quantity extras.
**Less than 25 sheets.
*†50 or more bundles.



Jefferson County Court House, Birmingham
Architects—Holabird & Root
Associate Architect—Harry B. Wheelock
Fabricators—The Ingalls Iron Works Company
Contractors—Southern Ferro Concrete Company

The Sinews

for the South's Buildings are wrought from

TENNESSEE STEEL

The Jefferson County Court House at Birmingham is still another imposing civic monument in the erection of which Tennessee Structural Steel has played an important part.

Sturdy, finely proportioned dignity—superior strength—fire-safeness—enduring value—have been attained in this and countless other structures of every conceivable size and type, from coast to coast, through the use of Tennessee Products which include not only structural shapes, plates and bars, but a full line of sheets, rails, track accessories, semi-finished steels and pig iron.

TENNESSEE COAL, IRON & RAILROAD COMPANY

General Offices: Brown-Marx Building, Birmingham, Ala.

Subsidiary of United States Steel Corporation

PRINCIPAL SUBSIDIARY MANUFACTURING COMPANIES

AMERICAN BRIDGE COMPANY
AMERICAN SHEET AND TIN PLATE COMPANY
AMERICAN STEEL AND WIRE COMPANY
CARNEGIE STEEL COMPANY
COLUMBIA STEEL COMPANY
CYCLONE FENCE COMPANY
FEDERAL SHIPBUILDING AND DRY DOCK COMPANY
ILLINOIS STEEL COMPANY
MINNESOTA STEEL COMPANY
NATIONAL TUBE COMPANY
OIL WELL SUPPLY COMPANY
THE LORAIN STEEL COMPANY
TENNESSEE COAL, IRON & R. R. COMPANY
UNIVERSAL ATLAS CEMENT COMPANY

Pacific Coast Distributors—Columbia Steel Company, Russ Building, San Francisco, Calif. *Export Distributors*—United States Steel Products Company, 30 Church Street, New York, N. Y.

Mill Products

Base price cents per pound f.o.b. mill except otherwise specified. Copper and brass product prices based on 7.75c, Conn., for copper

Sheets	
Yellow brass (high)	15.37½
Copper, hot rolled	17.62½
Lead, full sheets (cut ½c more)	8.25
Zinc sheet (100-lb. base)	9.00
Tubes and Pipes	
Seamless yellow brass (high)	20.25
Seamless copper	20.12½
Rods	
Yellow brass (high, full turnings)	13.62½
Naval brass	14.75
Anodes	
Copper, untrimmed	15.87½
Wire	
Yellow brass (high)	15.87½

Old Metals

Dealers' buying prices, cents lb.

No. 1 Composition Red Brass	
New York	4.75 to 5.00
Chicago	4.25 to 4.75
Cleveland	5.00 to 5.50
St. Louis	4.00 to 4.25
Heavy Yellow Brass	
New York	3.00 to 3.25
Heavy Copper and Wire	
New York	5.50 to 5.75
Boston	5.00 to 5.25
Chicago	4.50 to 5.00
Cleveland	5.00 to 5.50
St. Louis	4.25 to 4.50
Composition Brass Borings	
New York	4.25 to 4.50
Yellow Brass Tubing	
Cleveland	3.00 to 3.50
Light Copper	
New York	4.50 to 4.75
Chicago	4.25 to 4.50
Cleveland	4.50 to 5.00
St. Louis	4.00 to 4.25
Light Brass	
Boston	2.00 to 2.25
Chicago	2.50 to 2.75
Cleveland	2.25 to 2.50
St. Louis	2.25 to 2.50
Zinc	
New York	1.25 to 1.50
Cleveland	1.00 to 1.25
St. Louis	1.25 to 1.50
Aluminum	
Clippings, soft, Cleveland	12.00 to 13.00
Clippings, hard, Cleveland	9.00 to 10.00
Borings, Cleveland	4.00 to 4.25
Mixed cast, Cleveland	4.00 to 4.25
Mixed cast, Boston	3.75 to 4.00
Mixed cast, St. Louis	3.75 to 4.00

Secondary Metals

Remelt alumnium No. 12	9.00 to 10.50
Brass ingots, 85-5-5-5	7.87½

Metals

Prices Display Strength in Face of Most Discouraging Demand Witnessed in Years

New York—Prices of most nonferrous metals in the past week have held firmly in the face of as discouraging a demand as the markets have experienced in a number of years. Lead and zinc have been entirely unchanged, while tin has strengthened slightly. Copper has shown no actual change in quotations but is in such a weak position that lower prices would occasion scant surprise.

Little improvement in demand or consumption was forecast for August, so disappointments have been few, but it is earnestly hoped that improvement is not far away. Whether it will arrive soon after Labor Day is a matter of much conjecture among metal market authorities. Meanwhile the stability of the market is due to severe curtailment of production and the realization of producers that price concessions would not produce betterment.

Copper—Stocks of refined metal continue to climb rapidly but shrinkage of production still is a slow process. It appears to be generally recognized in the industry that current conditions soon will force a showdown, in which a large number of producers will have to close their mines and smelters, but it is also thought that no further important action will be taken until after Labor Day. Custom smelters are asking 7.50c to 7.75c, Connecticut, and doing very little business. Producers are out of the market, both domestic and export. Mill products are based on copper at 7.75c.

Zinc—Little test has been afforded the prime western zinc market at 3.85c, East St. Louis, in the past week, with neither buyers nor sellers showing much interest. On account of continued progress in curtailment, stocks of slab zinc last month were cut 7090 tons, to 131,838.

Tin—The price of Straits has climbed gradually in the past week, not so much on account of demand as the reluctance of holders to sell in view of the prospects of further curtailment.

Lead—Firmness continues though new business is confined to a few carlots for prompt shipment. Strong July statistics are expected.

Aluminum—New business is extremely quiet but prices are steady. Frequent news of expanded uses helps to bolster sentiment in this market.

Coke By-Products Quiet; Sulphate Buying Deferred

New York—Pending more definite developments abroad, domestic consumers of sulphate of ammonia have not entered the market for usual contract requirements. The breakdown of the European cartel is the principal factor in the present unsettlement. Domestic material is unchanged from a week ago at $1.375 per 100 pounds, Atlantic seaboard. Strength in toluol features an otherwise dull distillates market. Prices are unchanged throughout the list. Recent activity in naphthalene has tapered, with the drug trade now virtually out of the market.

Coke By-Products

	Spot
Per Gallon, Producers' Plants, Tank Lots	
Pure benzol	$0.18
90 per cent benzol	0.18
Toluol	0.27
Solvent naphtha	0.24
Commercial xylol	0.24
Per Pound at Producers' Plants in 250-Pound Drums	
Phenol	0.16 to 0.17
Per Pound at Producers' Plants	
Naphthalene flakes	3.75 to 4.75
Naphthalene balls	4.75 to 5.75
Per 100 Pounds Atlantic Seaboard	
Sulphate of ammonia	$1.375

Prices of the Week, Cents a Pound

	Copper—Electro delivered	Copper—Lake delivered	Copper—Casting refinery	Straits Tin—New York Spot	Straits Tin—New York Futures	Lead N. Y.	Lead East St. L.	Zinc St. L.	Aluminum 98-99%	Antimony Spot	Nickel Ingot
August 5	7.50	8.00	7.40	24.45	24.82½	4.40	4.22½	3.85	22.90	6.62½	35.00
August 6	7.62½	8.00	7.40	24.37½	24.75	4.40	4.22½	3.85	22.90	6.62½	35.00
August 7	7.62½	8.00	7.25	24.87½	25.25	4.40	4.22½	3.85	22.90	6.62½	35.00
August 8	7.62½	8.00	7.25	25.00	25.25	4.40	4.22½	3.85	22.90	6.62½	35.00
August 10	7.62½	8.00	7.25	25.12½	25.50	4.40	4.22½	3.85	22.90	6.62½	35.00
August 11	7.50	7.82½	7.25	25.00	25.30	4.40	4.22½	3.82½	22.90	6.62½	35.00

Europe

Markets More Uncertain—Prices Sacrificed—More British Plants Expected to Close

London—(*By Cable*)—Dull market conditions and unstable prices are reported from France, Belgium and Germany. STEEL's correspondents in those countries say that anxiety has been accentuated recently, especially in view of the weakening of the pound sterling. Some German merchants are offering tin plate at 13 shillings ($3.15) per box of 108 pounds.

British markets are featureless. Midland steel and iron plants, except blast furnaces, have closed for holidays. Stocks, instead of demand, are expanding. The market for Derbyshire iron pipe is the only bright spot. Additional plants in the Middlesbrough district are expected to close. In Scotland it is reported only one sheet mill is operating satisfactorily. Canada is buying tin plate steadily; demand for galvanized sheets continues downward.

Holidays and Credit Ills Hurt British Steel

London—The financial crisis in Germany, uncertainty with regard to results of the London seven-power conference and the fact that national holiday periods have occurred in France, Belgium and Scotland, are among the principal factors on account of which iron and steel export business has been reduced to the absolute minimum. Transactions between Germany and other countries have practically ceased, and uncertainty in relation to the financing of important transactions has further hampered business. When the moratorium proposals of President Hoover became known in Europe at the beginning of the month there was a sudden rise in iron and steel prices, but it is no cause for astonishment that under present circumstances the higher levels have not been maintained, and in some cases prices have again approached the record low levels which characterized June business.

In Great Britain there is less competition from the Continent in iron and steel, with the result that a fair volume of business has been transacted in semifinished steel materials with British makers. According to the report of the London Iron and Steel exchange, export business is of a hand-to-mouth character, and although there is a good volume of inquiry, a comparatively small proportion leads to actual business. A number of works will close down during the first week of August, extending the August bank holiday for a whole week, and in some cases beyond that limit. Generally speaking, trade has adopted a waiting pose.

Railway Orders Awarded

Recently a limited number of engineering contracts have been booked by British firms, including five locomotives for the Gold Coast Government railways, by the North British Locomotive Co. Ltd., Glasgow; six locomotive boilers for the Buenos Aires Pacific Railway Co. Ltd., by Robert Stephenson & Co. Ltd., Darlington; a fast passenger steamer of 5000 tons for foreign owners, by Swan, Hunter and Wigham-Richardson Ltd., Wallsend, and an important order for boilers for South Africa and other destinations, contracted with Babcock and Wilcox Ltd. One of the latest contracts is for the complete electrical equipment of steelworks and rolling mills of the South African Iron & Steel Corp. at Pretoria, obtained by the English Electric Co. Ltd., Stafford, this contract being valued at £130,000. Another contract, valued at £100,000, has been awarded to Asea Electric Ltd., London. Both orders were placed by Dorman, Long & Co. Ltd., the main contractors.

Reports from the Continent are to the effect that business is more or less at a standstill. The political and financial events of the past two or three weeks also have had their repercussive effects on negotiations which were being carried out with a view to reorganizing the European steel entente, and it has been decided to extend the life of the entente to Aug. 31, and the meeting which was scheduled to take place July 17 has been postponed.

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, Aug. 10	*British* Gross Tons U. K. Ports		*French* Metric Tons Channel Ports		*Belgium and Luxemburg* Metric Tons Channel Ports		*German* Metric Tons Rotterdam or North Sea Port	
Export Prices f.o.b. Ship at Port of Dispatch—By Cable								
PIG IRON		£ s d		£ s d		£ s d		£ s d
Foundry No. 3**.....	$14.22	2 18 6*	$11.79	2 8 6	$11.79	2 8 6	$11.85	2 8 9
Basic-bessemer.....	14.58	3 0 0	11.18	2 6 0	11.18	2 6 0	13.37	2 15 0
Hematite, Phos. .02-.05	15.31	3 3 0	.....	.....	.....	.....	17.01	3 10 0
SEMIFINISHED STEEL								
Billets.....	$25.52	5 5 0	$15.55	3 4 0	$15.55	3 4 0	$15.80	3 5 0
Wire rods.....	41.31	8 10 0	25.51	5 5 0	25.51	5 5 0	25.51	5 5 0
FINISHED STEEL								
Standard rails.....	$40.10	8 5 0	$31.59	6 10 0	$31.59	6 10 0	$31.59	6 10 0
Merchant bars.....	1.52c	7 0 0	.75c	3 8 6	.75c	3 8 6	.80c	3 12 6
Structural shapes.....	1.68c	7 15 0	.72c	3 5 0	.72c	3 5 0	.73c	3 6 0
Plates.....	1.79c	8 5 0	.88c	4 0 0	.88c	4 0 0	.90c	4 2 0
Sheets, black, 24 gage	1.90c	8 15 0	1.76c	8 0 0	1.76c	8 0 0	1.76c	8 0 0
Sheets, gal., 24 ga. corr.	2.03c	9 7 6	2.20c	10 0 0	2.20c	10 0 0	2.31c	10 10 0
Bands and strips.....	2.06c	9 10 0	.92c	4 3 9	.92c	4 3 9	.94c	4 5 0
Plain wire, base.....	2.06c	9 10 0	1.11c	5 1 3	1.11c	5 1 3	1.11c	5 1 3
Galvanized wire, base..	2.39c	11 0 0	1.36c	6 3 9	1.36c	6 3 9	1.38c	6 5 0
Wire nails, base.....	2.39c	11 0 0	1.13c	5 2 6	1.13c	5 2 6	1.13c	5 2 6
Tin plate, box 108 lb...	$ 3.28	0 13 6	.....	.....	.....	.....	$ 8.26	1 14 0

			French Francs		Belgian Francs		Renten Marks	
Domestic Prices at Works or Furnace—Last Reported								
Fdy. No. 3 Pig Iron**	$14.22	2 18 6	$11.76	300(2)	$12.79	460	$17.94	78
Basic pig iron.....	14.58	3 0 0	12.74	325(1)	11.68	420	19.67	85.50
Furnace Coke.....	2.67	0 11 0	5.68	145	5.14	185	4.92	21.40
Billets	25.52	5 5 0	19.21	490	18.07	650	25.41	110.50
Standard rails.....	1.79c	8 5 0	1.41c	785	1.57c	1,210	1.32c	127
Merchant bars.....	1.63c	7 10 0	.83c	460	.83c	635	1.31c	126
Shapes.....	1.90c	8 15 0	.99c	550	.81c	620	1.30c	125
Plates.....	1.95c	9 0 0‡	1.26c	700	.97c	745	1.53c	147
Sheets, black, 24 gage	1.90c	8 15 0	2.19c	1,215	1.82c	1,400	1.22c	117
Sheets, gal. 24 ga., corr.	2.06c	9 10 0	2.39c	1,325	1.47c	1,900	3.43c	330
Plain wire.....	2.06c	9 10 0	1.80c	1,000	2.08c	1,600	2.15c	207
Bands and strips.....	2.06c	9 10 0	1.01c	590	1.04c	800	1.54c	148

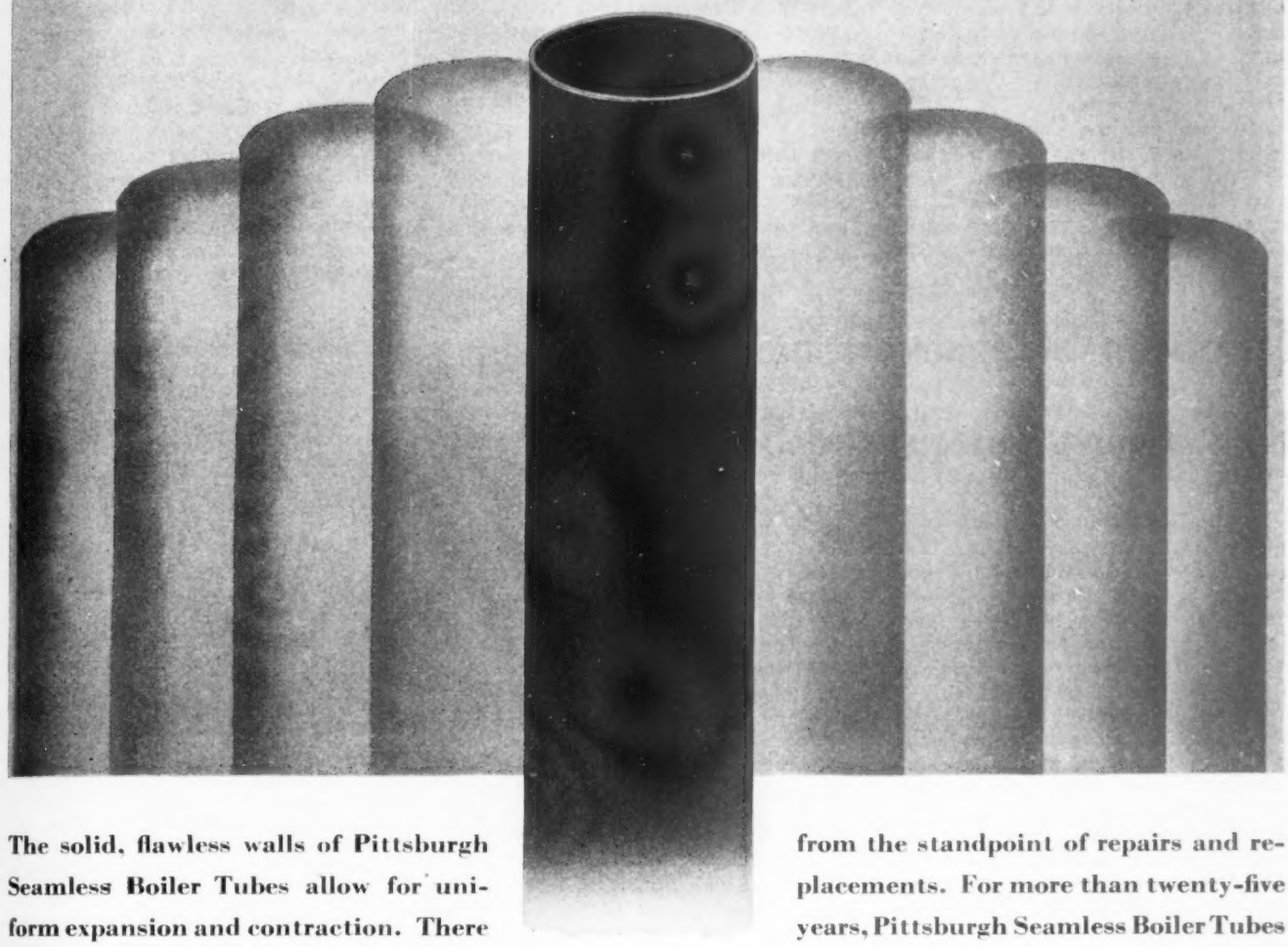
*Middlesbrough; †Basic; ‡delivered; (1) Basic-bessemer; (2) Longwy. British export furnace coke £0 11s 0d ($2.67) f. o. b. Ferromanganese £17 9s 6d ($84.93) delivered Atlantic seaboard, duty-paid. German ferromanganese £9 0s 0d ($43.74) f. o. b.; **Silicon 2.50-3.00. British quotations are for basic openhearth steel. French, Belgian, Luxemburg, and German are for basic-bessemer steel.

Sees Need for Entente;

Brussels—At the annual general meeting of the Societe Anonyme

"PITTSBURGH SEAMLESS"

FOR UNIFORM STRENGTH AND SAFETY



The solid, flawless walls of Pittsburgh Seamless Boiler Tubes allow for uniform expansion and contraction. There are no seams, pin holes or any other dangerous points of potential weakness that might cause bursting under the stress of increased pressures. Pittsburgh Seamless Tubes are entirely dependable from the standpoint of safety and their surplus strength makes them remarkably economical from the standpoint of repairs and replacements. For more than twenty-five years, Pittsburgh Seamless Boiler Tubes have been reducing boiler upkeep costs in many plants by their extra durability and safety . . . Pittsburgh Seamless Boiler Tubes are uniformly made to a single standard of excellence by one Company which controls both raw materials and manufacture from the ore to finished product.

Pittsburgh Seamless

BOILER TUBES

PITTSBURGH STEEL PRODUCTS COMPANY

Pittsburgh · New York · Chicago · Pittsburgh Steel Co. (Division of) · Detroit · St. Louis · Tulsa · Houston

d'Ougree-Marihaye, July 27, the chairman made some interesting statements relative to the European steel entente and other syndicates. He pointed out that at the beginning of the financial year 1930-31, international selling syndicates had been provisionally arranged for export sales of certain products, and minimum prices had been fixed. Unfortunately, through lack of discipline on the part of a number of affiliated members, these comptoirs fell through almost immediately after they had been established, and this was promptly followed by a substantial downfall of prices.

Referring to the European steel entente itself, it was pointed out that the entente continued to function with penalty clauses until the end of December, 1930, since when it has continued to operate, but without the sanction of penalties, with the result that the control of production has not been so efficacious as it should have been, and this has to some extent detracted from the good influence of the entente, which controls 30 per cent of the world production.

The speaker emphasized that the capacity of iron and steel production of the world today is larger than is justified by present demands, and that it is necessary that producers should come to an understanding to adapt production to demand, in order to prevent a downfall of prices. It is in that direction that the steel entente is trying to work, the main object being to avoid cut-throat competition and selling at uneconomic prices. The speaker said that there was reason to hope that eventually the entente would be reorganized.

European Steelmakers Seek Relief By Forming Cartels and Syndicates

London—Negotiations toward formation of a national merchant bar union ended successfully and a syndicate has been formed. Officially, the syndicate began to operate Aug. 1. At the same time the semifinished steel syndicate was reorganized for a period ending Dec. 31, 1932.

It will be recalled that previously there was an A-products syndicate, which handled semifinished and structural steel. When the negotiations for the formation of the merchant bar syndicate were well advanced, it was decided to break up the A-products syndicate into two separate organizations, and the structural steel syndicate was formed July 1 for a period extending to Dec. 31, 1934, and the semifinished steel syndicate is now a separate organization. Prices for semifinished steel and beams have not undergone any change. With regard to merchant bars, the basis price of 500 francs ($19.50) is fixed for material f.o.t. Thionville in the east of France, this price being for basic bessemer steel. There is an extra of 75 francs ($2.92) per ton for soft open-hearth steel. Various adjustments in prices are provided with regard to freight rates to different parts of France.

The syndicate controls sales of merchant bars of ordinary basic bessemer steel quality and open-hearth quality up to an extra of 20 per cent. The syndicate is composed of steelworks which manufacture merchant bars, and also rerollers who do not manufacture their own steel. The Saar steelworks are included in the syndicate.

The works are free to take orders direct from their clients, but the syndicate controls by fixing minimum prices and also allocates a quota to the various makers.

Certain anxiety prevails among members of the European wire rod syndicate, owing to increasing competition from the United States and Japan in Far Eastern markets. It is pointed out that about two years ago the aggregate tonnage allocated to the syndicate was 500,000 metric tons per quarter, and this has now dwindled to about 375,000 tons. It is recognized that this decrease is due to some extent to the trade depression, but there are signs that American and Japanese competition is undoubtedly exerting influence and tends to increase.

There will be a meeting of members of the syndicate at Luxemburg Sept. 3 with a view to extending the life of the syndicate until 1934 or 1935. The general feeling among members with respect to this prolongation is hopeful, especially since Belgian wire products manufacturers have recently arrived at an agreement among themselves, one of the conditions necessary for the prolongation of the wire rod syndicate.

The arrangement between the Belgian wire products manufacturers is also expected to bring about the desired international syndicate of wire products manufacturers, since French makers have already agreed among themselves. Apparently the only difficulty now remaining is the attitude of Dutch makers, who have not yet agreed to the quota which would be allotted to them, but it is hoped that their objections will be overcome.

The European steel entente has been provisionally extended until the end of August. A meeting had been arranged for July 17 with a view to putting the last touches to the plan of reorganization, and it was hoped that the entente might then be renewed for a period of years, but owing to events in Germany, the German representatives were unable to attend and the meeting had to be postponed.

The German financial crisis may create certain difficulties in the process of reorganization of the entente, because one of the basic principles was that export quotas should be alloted to the various member countries, and it is feared that German manufacturers may seek means of exporting large quantities soon to get rid of accumulated stocks and also with a view to increasing their holding in foreign exchange. On the other hand, there is no doubt that Germany is as anxious as the other countries to see the entente continued, and it is expected that eventually the difficulties will be overcome.

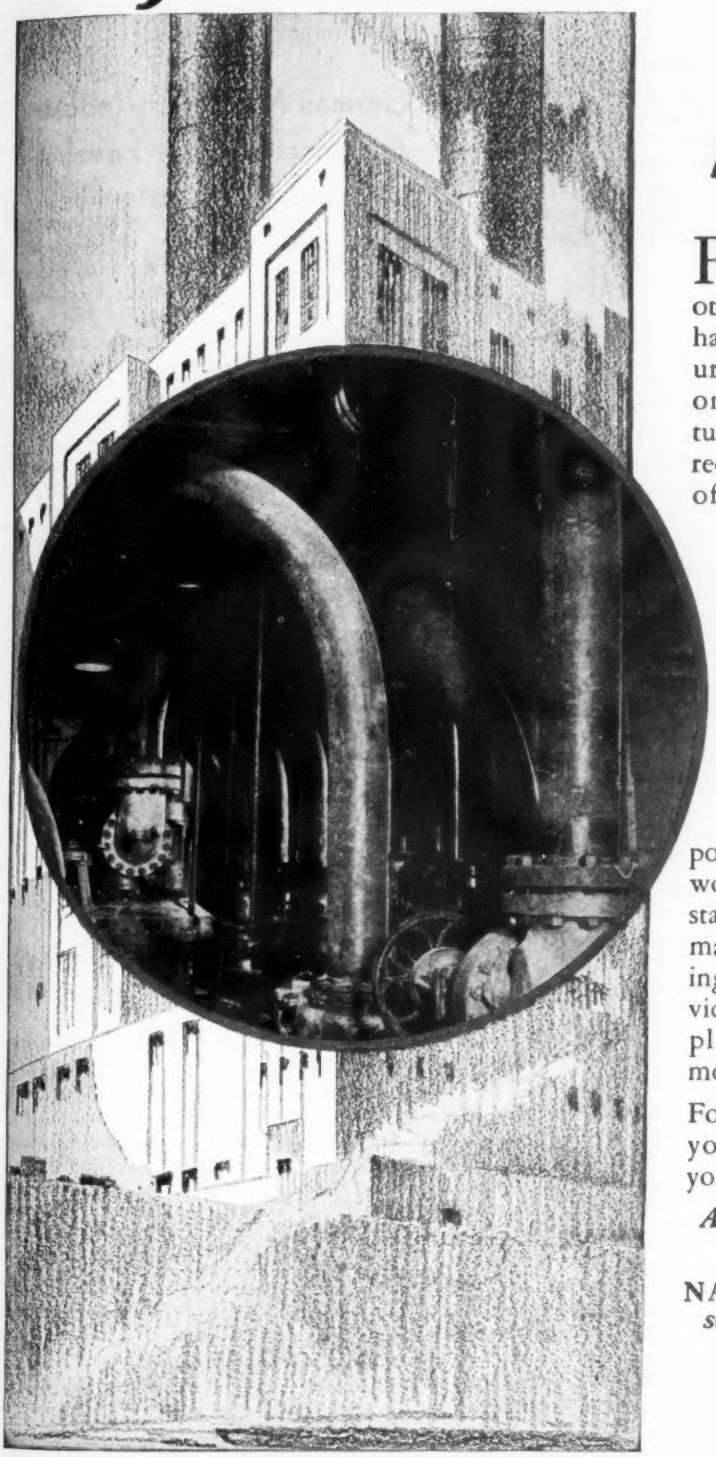
Belgian First Half Output Shows Heavy Decline

Brussels—During the first half of the year Belgian blast-furnaces produced 1,580,520 metric tons of pig iron. The production of steel ingots and castings amounted to 1,509,930 metric tons, and that of finished steel to 1,152,070 tons. These figures compare with 1,878,570 metric tons of pig iron, 1,880,220 tons of steel ingots and castings, and 1,524,060 tons of finished products in the first six months of 1930, showing for this year a resulting decrease of 15.9 per cent in pig iron, 19.7 per cent in steel ingots and castings, and 24.4 per cent in finished steel. During the first six months of this year output of metallurgical coke totalled 2,457,720 metric tons, against 2,843,780 tons in the corresponding period of last year, showing a decrease of 13.6 per cent.

In June this year, iron and steel production in Belgium showed an increase, the figures being higher than at any time since January. Comparisons follow:

Mon. ave.	Coke	Act. Furn.	Pig iron	Steel ingots and castings	Finished steel
1913	294,000	.....	207,000	205,000	155,000
1928	494,000	.....	325,000	328,000	281,000
1929	499,000	58	341,000	344,000	296,000
1930	447,000	44	283,000	282,000	232,000
1931					
Jan.	417,100	45	270,360	263,120	173,290
Feb.	380,130	44	240,210	227,880	193,010
Mar.	420,360	43	263,260	247,670	200,010
Apr.	410,430	46	257,500	250,670	199,600
May	416,680	44	271,040	250,610	185,640
Jun.	413,020	46	278,150	269,980	200,520

"High Pressure" SUCCESS *starts with the right Pipe*



Power plant development, like other important industrial advances, has involved control of higher pressures and temperatures. More than once progress has halted for want of tubes or piping to meet the necessary requirements, with adequate margins of safety, and within the necessary limits of weight, dimension, and cost. High-pressure and high temperature success, in general and in the particular installation, therefore, demands first of all, satisfactory pipe.

Great strength and ductility, together with a degree of uniformity that is almost absolute, commend NATIONAL Pipe for power-plant use. Good threading and working qualities make it easy to install. The most thorough control of materials and processes make it lasting and, therefore, economical in service. The preference of well advised plant engineers has made it the most used pipe in the industry.

For new projects or for replacements, you are sure of maximum value if you specify NATIONAL—

America's Standard Wrought Pipe

NATIONAL TUBE COMPANY
Subsidiary of United States Steel Corporation
PITTSBURGH, PA.

U S STEEL

NATIONAL PIPE
WELDED OR SEAMLESS

Machinery

STIMULUS has been given here and there to the machine tool market by substantial orders placed by automotive interests which lately have enlivened their own stagnant markets by radical improvements to low priced cars. This is confidently expected to foreshadow fall recovery. Inquiry generally has revived, being stimulated in many cases by almost revolutionary changes in the entire lines of well known builders. At the same time these revolutionary changes may be responsible in part for an unusual amount of "shopping around" by prospects, who naturally wish to check and compare the many rather startling claims.

New York—Machine tool buying remains spotty. Aside from a small list from the New York, New Haven & Hartford, railroad demand is at a virtual standstill and little is coming from either the electrical industry or the shipyards. In the brass field there is fair buying by manufacturers of meters, but in other branches business is flat. New York, New Haven & Hartford inquiry calls for one high-speed drill, one 96-inch power brake and one 16-inch toolroom lathe, all for the Van Ness shops. This is in addition to a driving box boring machine noted recently.

It now develops that recent orders booked by a northern New Jersey builder of hobbing machines for Detroit automobile manufacturers and noted on this page two weeks ago, comprised approximately 90 units, this equipment being for three companies. Preliminary plans for 30 machine tools have been issued by the local board of transportation for proposed car repair shops to serve the Eighth avenue subway, but release of a formal list is not expected for at least another fortnight.

Worcester, Mass.—Many lines of the machinery market are feeling some stimulus from the automobile industry. Chevrolet is inquiring for both lathes and grinders. Also it is reported that Ford may shortly become a factor in machine tool buying. While several Worcester firms already are working on machinery for Chevrolet, most of these quotations are still awaiting approval.

Aside from this Chevrolet business, domestic demand for lathes is not lively. Navy contracts for Brooklyn and Mare Island are still pending. Reed-Prentice Corp. is shipping seven lathes to Russia this week and has another lot of nine ready for shipment.

Pittsburgh—Activity in the machine tool market is unchanged from the dull rate that has prevailed for the past several months. Occasional orders are being received but total business is at a sharply depressed level.

Continued quietness in inquiry points to no early improvement in buying. Some work has been pending for many months but closing is deferred, although hope is entertained that a portion of such inquiry will revive later in the year.

Cleveland—Inquiry has revived to an encouraging degree, particularly for those companies which lately have announced new machine tools which appear to make older lines definitely obsolete. On the other hand, orders continue to be decidedly elusive, and it is pointed out that to some extent this also may be due to prevalence of new models. Many prospects undoubtedly are inspired by generous claims, to make careful comparisons of the various new machines, before committing themselves.

In the meantime the persistent lack of orders is making it an increasingly difficult problem to maintain even the skeleton production organizations. Some cutting of sales forces also is reported, although moves toward augmented customer service, such as that featured in a news item elsewhere on this page, seem more logical.

The bearing market has been enlivened by a substantial order placed by the Pennsylvania railroad with the Timken Roller Bearing Co.

Chicago — Some slight improvement is discernible to machine tool manufacturers and dealers in the growing list of active or near-active inquiry. Unfortunately, the manner in which contracts have been placed over the past week makes more nearly correct to characterize the majority of the items overhanging the market as "near-active." A few inquiries are out from the automotive interests and there is some government work developing which involves navy yard equipment. Railroads, however, are holding off.

It is interesting to note that inroads of used machines in the market have at no time during the current depression been of serious proportions. Prospective customers still pursue the policy of continued shopping and persistent inquiry among all machinery sources.

German Machinery Industry At Unsatisfactory Level

Washington—German machinery industry showed a slight improvement during June in receipt of inquiries from foreign and domestic customers, according to a report from the Association of German Machine Building Plants received by the department of commerce. According to this report, a few large contracts were responsible for the gain in foreign orders as compared with the previous month and while domestic orders were better, they still were considered far from satisfactory.

Average weekly working time and degree of plant activity declined slightly, as compared with May. Working hours amounted to slightly under 42 per week while the degree of plant activity was slightly over 43 per cent of capacity. There was little change in the unsatisfactory business situation for the majority of industrial machinery groups. However, a slight improvement in foreign and domestic trade was noticeable in ventilators and in crushing machinery and somewhat better foreign business in machine tools and rolling mill equipment.

Cincinnati Concerns Adopt Plan for Direct Service

Cincinnati Milling Machine Co. and Cincinnati Grinders Inc., Cincinnati, manufacturers respectively of milling machines and of grinding machines, announce direct sales representation in the Detroit, Chicago, Cleveland and Cincinnati territories.

This new direct factory representation is being put into effect as a result of an increasing demand on the part of machine tool users in these territories for field technical service direct from the plant.

Technically trained engineers with thorough practical experience in modern milling and grinding practice will serve the manufacturing industries in these territories. Offices shortly will be opened in Cleveland, Detroit and Chicago.

In all other territories dealers will be maintained and the direct factory representation through milling and grinding specialists, working in conjunction with dealers, will continue as has heretofore been the case.

Construction and Enterprise

CONCISE, TIMELY BUSINESS BUILDING OPPORTUNITIES IN FIELD OF INDUSTRY

New England

ANSONIA, CONN.—American Brass Co., Grand and Meadow streets, Waterbury, Conn., will build a plant addition on Canal street here, by its own forces. (Noted May 7.)

New York

BUFFALO—Ward Specialty Corp. has been incorporated with 400 common shares by Block & Weppner, Liberty Bank building, to make combustion engines.

NEW YORK—Department of sanitation advises through Joseph C. Zengerle, chief engineer, incinerators and garages, that site has not yet been obtained for an incinerator at Douglaston, L. I. City will have under contract before the end of the year four 750-ton incinerator plants throughout the city. (Noted Aug. 6.)

New Jersey

CAMDEN—Northern Machine Corp., recently organized by William J. Young and Roscoe B. Skinner, will manufacture machinery for the production of paper bags.

HIGHLAND PARK—Crushed Coal Combustion Corp. has been incorporated with $160,000 and 2000 common shares by Osborne, Cornish & Scheck, 24 Commerce street, Newark, N. J., to make machinery and tools.

NEWARK—General Controls Corp. has been incorporated with 1000 common shares by Joseph L. Greenberg, 165 Broadway, New York, to make electrical devices.

NEWARK—Newark Steel Erection Co. Inc. has been incorporated with $125,000 capital by William Goldstein, 786 Broad street, to engage in steel and iron construction.

NEWARK—Consolidated Appliance Co. Inc. has been incorporated with 2500 common shares by Samuel B. Goldstein, 31 Clinton street, to manufacture and sell refrigerators.

NEWARK—H. Rotman & Co., 35 Prince street, will remodel a 2-story building recently acquired at 185 Camden street. Company manufactures butchers' fixtures, display cases and refrigerators.

NEWARK—Unique Arts Mfg. Co., 196 Waverly avenue, is having revised plans prepared for erection of a 1-story plant. Cost is estimated at $50,000. S. Shew & Co., 24 Commerce street, are architects and engineers. Company manufactures metal novelties. (Noted Feb. 19.)

Pennsylvania

ALLENTOWN—Allen Electric Co. Inc. has been incorporated with 100 no par shares by Joseph S. Freeman, 224 South Fifteenth Street, to manufacture and deal in electrical fixtures.

ASPINWALL—National- Torch Tip Machine Co. has let contract to Frank W. West & Co., 1235 Washington boulevard, Pittsburgh, for a plant to be erected on Freeport road. A. J. Kraus, 1253 Woodland avenue, Pittsburgh, is architect. Estimated cost, $40,000.

DARBY—Plant of the Norbom Engineering Co. recently was damaged by fire, with loss estimated at $50,000. Company manufactures shipyard machinery.

ERIE—Crossley Co. has been incorporated with $15,000 capital by Henry Crossley, 1031 Cranberry street, and Edward Crossley, 456 West Fourth street, to manufacture, assemble and repair machinery, mechanical devices and equipment.

NORRISTOWN—Plant of the Penn Tack Co. recently was virtually destroyed by fire. Loss is estimated at $150,000.

PHILADELPHIA—Cortright Metal Roofing Co., 2218 Chestnut street, has secured a 4-story plant at Columbia avenue and Mascher street.

PHILADELPHIA—Bureau of supplies and accounts, navy department, Washington, will receive bids Aug. 25 on schedule 6308 for seven semi-portable arc welding sets.

PHILADELPHIA — Ontario Metals Refining Co. has been incorporated with 100 no par shares by Samuel Osterneck, 515 South Melville street, and Albert Berliner, 5429 Woodcrest avenue, to manufacture, refine, smelt and trade in metals and ores.

Ohio

BARBERTON—Plant of the Barberton Foundry Co., 743 Huston street, recently was damaged by fire. Loss, chiefly to patterns, is estimated at $9000.

CANTON—Automatic Mechanical Stoker Corp. has been incorporated with 100 no par shares by Clayton Hoffman, Harter Bank building. J. L. and E. E. Hinderer are interested.

CLEVELAND—Plant of the Steel Blast Abrasives Co., 6536 Carnegie avenue, located at 14915 Woolworth road northeast, recently was damaged by fire. Loss is estimated at $3000.

CLEVELAND—Board of education, Frank G. Hogen director, Standard Bank building, will receive bids until August 17 for alterations to the foundry at West technical high school, estimated to cost $3600.

CLEVELAND—City, R. H. Davis service director, is considering erection of a service building at Clark and Pershing avenues. Proposed unit would contain 40,000 square feet of floor space. Herman Kregelius, city hall, is engineer.

CLEVELAND—Smolensky Valve Co., Engineers building, A. G. Smolensky secretary, is having plans prepared for construction of a 3-story plant at Central avenue and Broadway. Structure will be 40 x 100 feet. Cost will approximate $35,000.

COLUMBUS—Columbus Battery Mfg. Co., recently incorporated with 100 no par shares, has leased property at 179 West Naghton street and has started production. D. P. Bowman is president and H. A. Hecox secretary.

COLUMBUS—State welfare department advises concerning request for apportionment of appropriated funds that itemized list of needs includes: Lima state hospital, boiler and engine repairs, $4000; Massillon state hospital, two boilers and stokers, $37,500; Ohio hospital for epileptics, boiler, stoker and equipment, $20,000, and engine generator and switchboard, $25,000. (Noted Aug. 6.)

DAYTON—Hohman Plating Co., Second and Taylor streets, has received bids for the construction of a 75 x 105-foot plant. William J. Huhn, 204 McClure street, is architect.

EAST LIVERPOOL—Patterson Foundry & Machine Co., R. L. Cawood president, will build a power plant on St. George street, project to be completed late in October. Unit will supply power to the Patterson Foundry company, Patterson Steel Products Co. and Patterson Refractories Co. Cost is estimated at $75,000.

KENT—Black & Decker, care of architect, Walter J. Wefel, 5716 Euclid avenue, Cleveland, have let contract to James C. F. Shafer Co., Smythe building, Cleveland, for a power house to be built here. Estimated cost, $15,000.

MANSFIELD—Mansfield Metal Vault Co. has been incorporated with $25,000 capital by G. E. Kalbfleisch, Richland Trust building.

WARREN—Warren Steel Specialties Corp., box 367, advises through C. T. Shape, president and general manager, that the corporation was formed for the purpose of continuing the business of Frost Steel Products Inc. Warren company contemplates purchasing the assets of the Frost company. Products are posts, racks, brackets, display stands, frames, etc. (Noted July 30.)

Indiana

AMBIA—Municipal council will receive bids Aug. 31 for a waterworks

plant to cost $15,000. W. F. Morgan is city attorney.

EAST CHICAGO—International Lead Refining Co. has let contract to Austin Co., 510 North Dearborn street, Chicago, for design and construction of a 1-story warehouse.

FT. WAYNE — Zollner Machine Works, Duluth, Minn., will move its activities to a local site, according to J. B. Wiles, industrial commissioner of the chamber of commerce. Company has purchased a site and will erect a plant building. Company manufactures automobile truck pistons.

INDIANAPOLIS — State highway commission has filed plans for erection of a service, repair and shop building to cost approximately $150,000.

RICHMOND—Board of education, William G. Bates superintendent, will receive bids Aug. 20 for boilers and stokers to be installed in Morton high school. Hamilton, Fellows & Nedved, 814 Tower court, Chicago, are architects. Estimated cost, $10,000.

TERRE HAUTE—Frank H. Reynolds Co. Inc., 1201 Sixth avenue, advises through W. S. Strong, secretary, that the company was organized to continue the business of Frank H. Reynolds in the manufacture of gray iron castings and machine parts and a special heat resistant casting. Company has leased a plant at the above address, formerly occupied by the Winslow Government Standard Scale Works, and has started operations. (Noted July 16.)

Michigan

DETROIT—American Molding Corp., 3123 Barlum tower, has been incorporated with $2000 capital by Thomas J. Rafferty, to manufacture metal products.

DETROIT—Lofland Amphibian Corp., 701 Majestic building, has been incorporated with $50,000 capital by William J. Lofland, 2327 Fullerton street, to manufacture and sell airplanes.

DETROIT—Dri-Gas Fire Extinguisher Corp., 715 Majestic building, has been incorporated with $25,000 capital by W. V. Baker, 1300 Oakman boulevard, to manufacture and sell fire fighting apparatus.

GRAND RAPIDS—John R. Cassleman, industrial commissioner of the chamber of commerce, is in contact with a metal products manufacturer seeking a site for establishment of a plant here. Company would require 30 acres for plant and accommodations, and would employ 600.

MARINE CITY — Andrew Freiderichs, mayor, and E. N. DeGurse, city attorney, are reported to be negotiating for the location of an industry here for the manufacture of pressed metals.

Illinois

CHICAGO—Gardiner Metal Co., 1366 West Lake street, has leased 24,000 square feet of space on West Forty-eighth place for future expansion. Company manufactures lead products.

CHICAGO—Pressed Steel Car Co., Farmers building, Pittsburgh, F. N. Hoffstot president, has awarded contract to Austin Co., 510 North Dearborn street, Chicago, for design and construction of its new Chicago plant. Six units, the largest 90 x 360 feet, will be built at 136th and Brandon streets. Project is to be completed in September. Estimated cost, $60,000.

EAST ST. LOUIS—Virginia Carolina Chemical Co., George K. Nash general manager, Richmond, Va., has let contract to the Austin Co., Arcade building, St. Louis, for a storage and manufacturing unit, 160 x 400 feet, to be built here. Cost is estimated at $100,000.

MOUNDS—City council plans to erect a municipal light and power plant and a pumping unit. Russell & Axon, 6200 Eastern avenue, St. Louis, are engineers.

Southern States

CULLMAN, ALA.—Municipal council is considering plans for erection of a municipal light and power plant.

ORRVILLE, ALA.—C. H. Hicks is reported to be in the market for a light crane of 1-ton capacity.

SHREVEPORT, LA.—W. P. Lincoln will occupy a plant, 108 x 224 feet, being erected in Bossier City, a suburb, by J. E. Knott, Bossier City. Steel tanks are to be manufactured.

SHREVEPORT, LA. — Constructing quartermaster, Barksdale field, will receive bids Aug. 28 for additional units, to include air corps assembly shop, warehouse, wing operations building, hangar, and four double hangars. Cost is estimated at $350,000.

ABERDEEN, MD.—Warehouse and shops of United States army at Aberdeen proving grounds recently were damaged by fire. Loss is estimated at $10,000.

BALTIMORE—Southern Steel Co. has been incorporated by Aaron Miller, 423 Pitman place, to deal in iron and steel.

WINSTON-SALEM, N. C.—R. S. Webb, chief engineer, D. N. Corp., is reported to be in the market for hoists, fans, motors, blowers and cranes.

HAMPTON ROADS, VA.—Bureau of supplies and accounts, navy department, Washington, will receive bids Aug. 25 on schedule 6311 for one synchronous motor generator set, with control equipment.

PARKERSBURG, W. VA.—City, M. L. Hoffman clerk, will receive bids for a sewage pump to cost $1500 and other equipment. L. G. Merrell is city engineer.

Missouri

SPRINGFIELD—Simpson Boat Co., Holland, Mich., plans to build a boat building plant at Osage beach, here.

ST. LOUIS—Monsanto Chemical Works, 1724 South Second street, has let contract for a warehouse to Woermann Construction Co., 3800 West Pine street, structure to contain 1,000,000 cubic feet of space. Estimated cost $100,000.

Arkansas

SILOAM SPRINGS—City council has plans for enlargement of the generating plant operated municipally.

Oklahoma

OKLAHOMA CITY—L. M. Bush, city engineer, will receive new bids for erection of a pumping station.

PRYOR—Municipal council is having plans prepared for a municipal light and power plant to cost $40,000. Long & Co., Colcord building, Oklahoma City, Okla., are engineers.

WILBURTON—Public Service Co., Public Service building, Tulsa, Okla., will build a substation in connection with a 52-mile transmission line from here to the Arkansas line.

Texas

OVERTON—Southwestern Gas & Electric Co., Shreveport, La., plans to build a 30,000 horsepower substation here for oil field requirements.

WILLOW SPRINGS—Taubman Supply Co. has established a warehouse and pipe machine shop here. F. L. Carmichael, Longview, Tex., is in charge.

Wisconsin

MILWAUKEE — Neldner Valves Corp., 2484 South Seventh street, recently organized by Stephen W. Neldner, will start quantity production of a self-lighting gas valve for stoves and ranges.

MILWAUKEE—Globe Steel Tubes Co., 3839 West Burnham street, is building a rolling mill extension, 84 x 116 feet. Construction contract has been awarded to Worden-Allen Co., Port Washington road. Cost is estimated at $50,000, with equipment.

MILWAUKEE—Plant of the Twentieth Century Machinery Co., 1012 South Fourth street, recently was damaged by fire. Loss to structure, 60 x 150 feet, is estimated at $25,000. Company manufactures bottling machinery. Henry Scarborough is president and general manager.

OSHKOSH—Hudson Mfg. Co., Minneapolis, manufacturer of sanitary dairy barn and stable fixtures, will erect an addition to its local plant, at 80 Harrison street.

RACINE—American Pattern & Mfg. Co. has been incorporated with 500 common shares by E. J. and E. E. Beck and H. A. and T. B. Nelson, to manufacture patterns, tools, dies and fixtures.

Utah

OGDEN—State building commission, capitol building, Salt Lake City, Utah,

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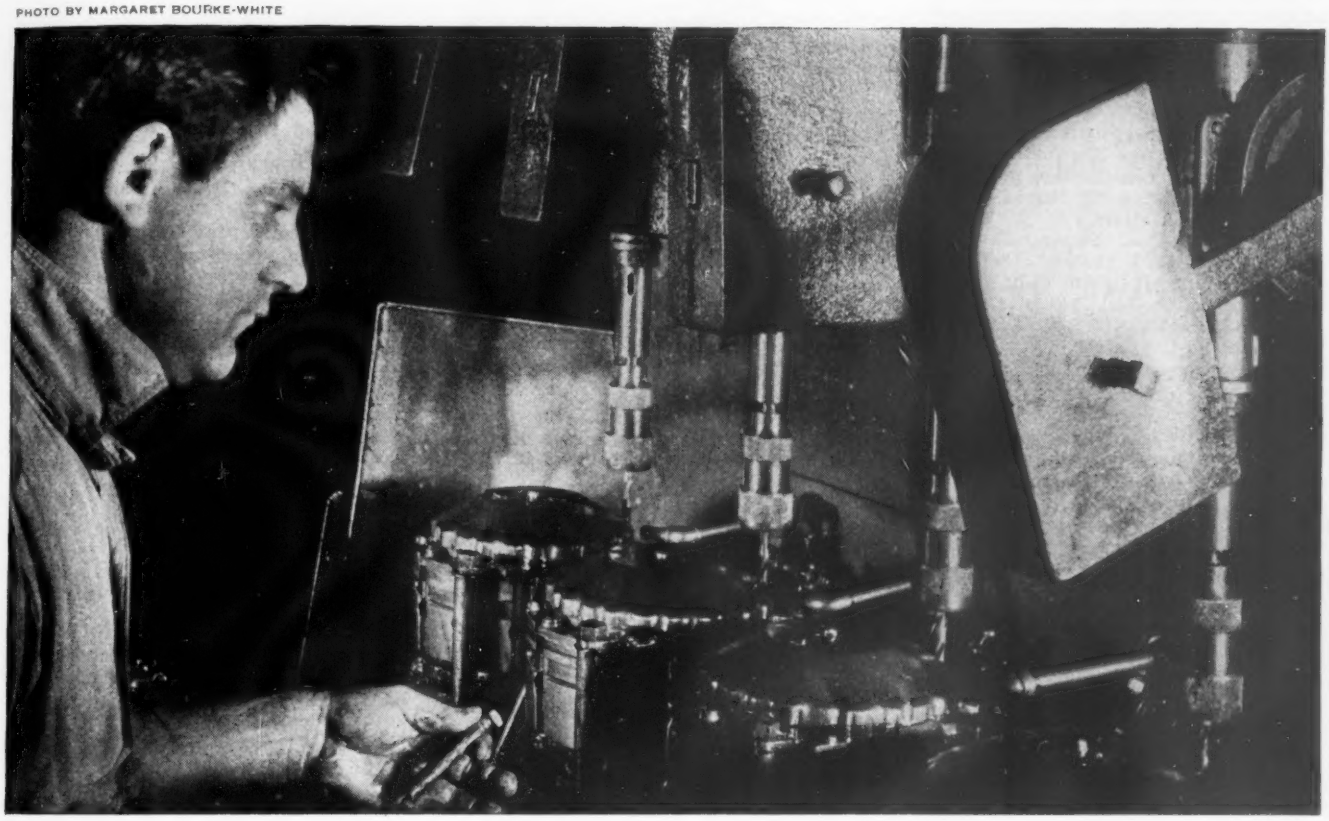
Leading motor car builders depend on R B & W for entire supply of an important bolt

PHOTO BY MARGARET BOURKE-WHITE



It's an important bolt in motor car assembly. A highly specialized bolt. We make millions of them every year for one of the very largest builders of popular-priced cars. We make this builder's entire supply of these important bolts.

That's confidence on the part of the automobile company. Confidence in quality and uniformity of the product. Confidence in our ability to ship the required volume, day after day, to the company's numerous assembling plants. Confidence that centering its entire requirements of this important bolt in one supplier will assure a steady volume and that no assembly line will be held up by shortage or defective stock.

Confidence such as that, built up in years of satisfying contact, is significant to every large consumer of bolting material. If you have any manufacturing problems involving the use of bolting material, you are invited to utilize the experience and facilities of the R B & W Engineering Service. It has solved many interesting problems, including simplification and reduced costs.

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Sales Offices at Philadelphia, Detroit, Chicago, San Francisco, Los Angeles, Seattle, Portland, Ore.

has plans for alterations at the state industrial school here and will receive bids soon. R. K. Brown, state building commission, Salt Lake City, is engineer. H. Pierce, Ogden, is architect.

Pacific Coast

DUNSMUIR, CALIF.—Dunsmuir high school district proposes to erect a 1-story vocational shop unit, 50 x 160 feet. Cost, with equipment, is estimated at $40,000.

LONG BEACH, CALIF.—Fields Chemical Corp., 1202 Financial Center building, Los Angeles, proposes to build a coke plant here.

LOS ANGELES—Albatross Steel Furniture Co., 12,411 Exposition boulevard, will build a plant addition to cost $70,000 with equipment. F. D. Rutherford, Mills-Fraser building, Santa Monica, Calif., is architect.

LOS ANGELES—Curtis Mfg. Co. Inc., 405 Lane Mortgage Co. building, has let contract for construction of a plant and office building at San Fernando road and Brazil street. V. W. Houghton, 617 North New Hampshire street, is architect. E. J. Walsh, 515 Orange Grove avenue, Alhambra, Calif., and C. A. Sanborn & Co. Ltd., 910 Black building, Los Angeles, are engineers. Approximate cost, $200,000.

SANTA CRUZ, CALIF.—City engineer has plans for the installation of pumping equipment in the municipal water plant.

TACOMA, WASH.—Western Ornamental Iron Inc., 1015 East D street, advises through E. N. Davidson that the company has taken over the plant of the Western Iron & Wire Works and B. E. Paul & Sons, and is continuing at the above address. Company produces architectural wrought iron, bronze, aluminum and wire work. (Noted July 16.)

Dominion of Canada

GUELPH, ONT.—Dawson Iron Works Ltd. has been incorporated with $40,000 capital by Albert Deadman, to carry on the business of iron and steel manufacturer.

PORT ARTHUR, ONT.—Northland Tractor & Equipment Co. Ltd. has been incorporated with $40,000 capital by Alexander J. McComber, to manufacture and deal in tractors, engines and boilers.

TORONTO, ONT.—City has plans for establishment of a municipal airport and construction of hangars and other units in the northwestern district. R. C. Harris, city hall, is engineer. Estimated cost, $250,000.

TORONTO, ONT.—Maytag Co. Ltd. has been organized as an affiliate of Maytag Co., Newton, Iowa, and will establish a branch plant for the manufacture of washing machines and other devices.

TORONTO, ONT.—Frink Sno-Plows of Canada Ltd. has been incorporated with $40,000 capital by Thomas B. Farrell, 80 Highbourne road, to manufacture snow plows.

TORONTO, ONT.—L. S. Brach Co. of Canada Ltd., affiliated with L. S. Brach Mfg. Corp., 129 Sussex avenue, Newark, N. J., manufacturer of electric clocks and other devices, has opened a plant at 283 King street.

TORONTO, ONT.—Silver-Marshall of Canada Ltd. has been incorporated with George W. Hislop, 6 Scarth road, as president and Richard T. Fulford, 34 Chestnut road, as vice president. Company is affiliated with Silver-Marshall Inc., 6401 Sixty-fifth street, Chicago. Plant with 12,000 square feet of floor space has been leased at 75 Sherbourne street for the manufacture of radio products.

MONTREAL, QUE.—Silent Glow Oil Burner Corp., Hartford, Conn., advises that plant has been established at 6320 St. Hubert street. Equipment was moved from Hartford for initial operations. (Noted Aug. 6.)

MONTREAL, QUE.—Canadian General Electric Co. Ltd., 941 Inspector street, has let contract for construction of a warehouse on Beaver Hall hill. Unit will be 69 x 154 feet. Cost is estimated at $425,000.

MONTREAL, QUE. — Chamber of commerce is reported to be in communication with Rootes Ltd., London, Eng., manufacturer of passenger cars and trucks, concerning construction of a plant here. Cost is estimated at $250,000.

New Trade Publications

FENCING—Pittsburgh Steel Co., Pittsburgh, in Catalog No. 322 illustrates its chain link fence in various applications. Full details of the various types of fence and fittings are given.

ARC WELDER—A leaflet by the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., describes its alternating-current welder with short wave arc control, 100 amperes, portable. It is designed for welding thin-gage material.

CAPACITORS—General Electric Co., Schenectady, N. Y., has issued a bulletin on capacitors for power-factor correction, covering construction and application of the capacitors and data relating to their use.

STRUCTURAL WELDING—Plate 25 of a series presenting studies in structural arc welding by the Lincoln Electric Co., Cleveland, is devoted to arc-welded mill buildings. It is devoted to bar joists and diagrams illustrate methods used in fabricating the structural members.

BLOW DOWN SYSTEM—A bulletin by the Elgin Softener Corp., Elgin, Ill., is devoted to its continuous blow down system for boilers, with precision control. The application of this device is described concisely and essentials of good design and correct application are pointed out.

CRUSHERS AND GRINDERS—Stedman's Foundry & Machine Works, Aurora, Ind., has issued a catalog of its swing and ring hammer crushers, grinders, pulverizers and shredders.

TAPS—Morse Twist Drill & Machine Co., New Bedford, Mass., has compiled in a small book, a tap manual, much practical and useful information relative to the construction and use of various styles of taps. A section is devoted to lubrication, an important factor in the use of these devices.

MOLDING MACHINE—Recent bulletins by Herman Pneumatic Machine Co. describe its high-speed, jar roll-over and pattern drawing molding machines. One bulletin is a report on two of the machines in service and the other contains engineering specifications and description. An automatic fluid timing valve for molding machines is illustrated in a third bulletin.

ROLL GRINDING—Farrel-Birmingham Co., Ansonia, Conn., has issued a booklet on production with precision in roll grinding. It explains the necessity of close accuracy and fine finish in rolls used for various manufacturing processes and how the skill built into the mechanism of its roll grinders permits attainent of high results with a minimum of human skill. It is illustrated.

DEEP WELL PUMPS—Bulletin No. 16A by the Pomona Pump Co., Pomona, Calif., is devoted to its line of water lubricated turbine pumps, including 100 installations in many types of industries. Reference tables of value to operators of pumps are included. It includes details of pump construction and adaptation of various types of power drive, including electric motor, belted and steam turbine.

WELDING EQUIPMENT—Bulletin by Joseph T. Ryerson & Son Inc., Chicago, is devoted to welding rod and equipment data to bring to the attention of users the constant improvements being made in these appurtenances for better welding. The bulletin describes and illustrates the newer types of welding rod and equipment with information on their uses. One section is devoted to gas and electric welding and another to acetylene and electric welding, the latter including improvements recently made to broaden the field of welding to make practical all types from portable welders to complete track-welding outfits.